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PARANASAL SINUS DISEASE IN INFANTS AND YOUNG CHILDREN *

L. W. DEAN, M.D.
IOWA CITY

The complications of paranasal sinus infection in infants and young children are numerous. Acute suppurative paranasal sinus disease and acute suppurative otitis media go together. Numerous ocular conditions, phlyctenular conjunctivitis, iritis, retrobulbar neuritis and choroiditis are usually benefited by the treatment of the coexistent paranasal sinus disease. Dr. McCullough of New York has seen three cases of retrobulbar neuritis secondary to paranasal sinus disease in children under 14 years of age. Dr. White of Boston, recalls several cases of involvement of the optic nerve of children 5 years of age and older. Dr. Gregg of Sioux Falls had a similar case in a child, aged 8 years.

There may be an interdependence between chronic multiple infectious arthritis and paranasal sinus disease in infants and young children. The absorption of bacterial protein from an infection of the sinus may be an etiologic factor in the causation of asthma in childhood. In a child, aged 7 years, as a result of treatment for paranasal sinus disease, attacks of asthma were diminished from at least one attack a month to one mild attack in a year. The cases that have been benefited by treatment are naturally those in which the inhalation of dust and the ingestion of food had no effect on the asthma.

Dr. Byfield reports one patient, aged 11 years, that has had asthma for nine years. The attacks came on at intervals of about a week previous to his admission; since the nasal sinuses were treated, he has had one attack in the course of a year. Similar results were secured in a boy, aged 8 years, and one, aged 12 years.

Harmon Smith makes the statement that pharyngitis, laryngitis and bronchitis, particularly in children, are very frequently the result of paranasal sinus disease.

Osteomyelitis of the bone surrounding the diseased sinus may occur. Cavernous sinus phlebitis, meningitis, and in young children, but not infants, brain abscess may occur.

Dr. A. G. Andrews of Chicago reports finding at the necropsy of a child, aged 6 years, meningitis with necrosis of the roof of the sphenoid. The presence of paranasal sinus disease was not suspected before death.

Recurrent fever in infants and young children without apparent cause is sometimes due to disease of the paranasal sinuses.

Three years ago, I. H., a boy, then 7 years of age, was referred to us by Dr. Byfield. He gave a history of attacks of sudden elevation of temperature of about 102 F. without apparent cause. During the attacks of fever, the boy was not ill. He seemed slightly indisposed, and the fever was found by the use of the thermometer. This condition had begun at about the age of 2. It had been made better by the removal of the tonsils and adenoids one year before, but persisted. Three years ago the paranasal sinus disease that was present was eradicated, and his trouble has completely disappeared.

Periodic vomiting may be associated with disease of the paranasal sinuses.

F. M., aged 6 years, suffered from attacks of recurring fever with vomiting. These attacks were complicated by acidosis. The eradication of the ethmoiditis resulted in a disappearance of the attacks of vomiting and fever. The work on his paranasal sinuses was done almost four and one-half years ago. He has had no recurrence of this trouble.

Cervical adenitis is frequently an important complication of paranasal sinus disease.

Sinuses, when diseased, may be a focus of infection at the age of 3:

Dec. 4, 1918, E. T., a girl, aged 3, was referred to us by Dr. Steindler for examination for a focus of infection in the upper respiratory tract. His diagnosis was chronic multiple infectious arthritis. We found chronic tonsillitis, adenoids and bilateral maxillary sinusitis. A hemolytic streptococcus was secured from both the maxillary sinuses and from the tonsils, which, when injected into a rabbit, caused arthritis. The tonsils and adenoids were removed, and the diseased maxillary sinuses were treated by simple irrigation with protargin mild. The sinus disease apparently disappeared but, while the arthritis was improved, it persisted. Six months later an opening was made in each maxillary sinus through the antromeatal wall, and the sinuses were treated. The sinus disease disappeared, and with it the acute joint trouble. Two years after this, July 6, 1920, the mother brought her into the pediatric service. The mother stated that since the little girl had left the hospital she had been much improved; the first year she had had perfect health apparently, but the next winter, following a severe cold, she had had considerable nasal discharge. There was no trouble with arthritis at this time; then two weeks before coming to the pediatric service she had developed a stiff and swollen ankle. Examination revealed pus in each maxillary sinus. A small opening was made in the antromeatal wall, and the maxillary sinus was irrigated. The maxillary sinus disease disappeared, and with it the acute manifestations of the arthritis. The result is apparently permanent.

Jeans [1] says:

Improvement following the treatment of sinusitis in many instances has been so definite and marked as to be convincing as to the rôle this infection had played. To see a child with deforming arthritis associated with severe bouts of fever become comfortable and afebrile and to see function gradually

* From the Otolaryngologic Service, University Hospital.
* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Jeans, P. C.: Tr. Am. Laryngol. A., 1925.

restored as a result of treatment of sinus disease is impressive, especially when in former years one has been accustomed to see all efforts unavailing and the disease become progressively worse.

He further said:

Any condition in infants and young children that may result from a focus of infection may result from sinus disease. Among such conditions may be included the following: Cardiopathies, rheumatic fever, chorea, nephritis, pyelitis, certain cases of cyclic vomiting, deforming periarthritis, anemia, anorexia, malnutrition and chronic digestive disturbance.

Certain remote effects seem more or less peculiar to sinus disease. Several writers have emphasized the relationship between sinusitis and subacute laryngitis, bronchitis, bronchiectasis, some pneumonias and certain cases of asthma. Jeans also mentions an acute illness in infancy with symptoms referable chiefly to the gastrointestinal tract and with such severity that death results if the condition is not relieved. Such an infant 2 months of age was referred to our service by Dr. Jeans, and recovered promptly on treatment of the acute paranasal sinus disease.

Marriott [2] says:

About six years ago, at the meeting of the Journal Club of the St. Louis Children's Hospital, Dr. Jeans reviewed an article on the subject of "Sinus Infections in Childhood and Their Effects." That was the start of a new era for us. Until that time, we, like other pediatricians, had an idea that children didn't get sinus infections very often, that when they did there were definite symptoms, perhaps headache or something of that kind, and that the diagnosis would be made with no difficulty. It never occurred to us that there might be remote and important effects from this infection. I asked Dr. Sluder about this, and Dr. Sluder came to the hospital, saw some of the children in question, found that they had sinus infections, and had several of his well trained associates come to the hospital at regular intervals. At present, in our wards, at almost any time in the year, more than half of all the children in the hospital are under treatment for some form of paranasal sinus infection.

He mentions a form of chronic interstitial nephritis accompanied by marked edema, diminished urine with large amounts of albumin, but without any change in the blood pressure; also, changes very frequently associated with staphylococcus infection of the nasosinuses, particularly the maxillary sinus.

When these staphylococcus infections of the nasal sinuses were cleared up by drainage or irrigation, this peculiar substance present in the blood and urine completely disappeared and, at the time that it disappeared, all the symptoms of nephritis, these patients changing from swollen, edematous children to normal individuals, to remain normal, unless a second attack of sinusitis occurs.

Paranasal sinuses are present in infants and young children. The ethmoidal cells are always present at birth; the maxillary sinus is only rarely absent. Only rarely is the sphenoidal sinus present at birth as a bony cell. Dr. J. Parsons Schaeffer informed me that occasionally at birth the sphenoidal sinus would be of sufficient size to be diseased. The frontal sinus is never present during the first year.

In infants and young children, the paranasal sinuses may be very precocious. At necropsy in a child, aged 5 years, 5 months, I have found a diseased sphenoidal sinus measuring 18 by 10 by 19 mm.; it was as large as an average adult sphenoidal sinus.

2. Marriott, W. M.: Tr. Am. Laryngol. A., 1925.

The pathologic changes in sinus disease in infants and young children are not different from those in the adult. We find even in infants, especially when there are complications of a more or less chronic nature, as chronic infectious arthritis, the characteristic changes of chronic adult paranasal sinus disease.[3] We find thickened epithelial linings in some cases, with cells of the transitional type. At times, typical metaplasia is present. Beginning cyst formation in the mucous glands, infiltration of the mucous membrane with inflammatory cells, is often found.

The stroma of the mucosa may be a dense fibrous tissue. Typical subepithelial granulation tissue may be present. Bone changes may be marked. There may be an enormously thickened periosteum infiltrated with inflammatory cells. The bone may show erosion and the deposition of poorly calcified bone. There may be abscesses in the bone. The spaces in the bone, the result of absorption, may be filled with fibrous tissue with distinct telangiectases of the blood vessels. Small polyps in the sinuses are often noted.

In studying paranasal sinus disease in infants and young children, the greatest benefit to be derived from roentgen-ray examination is to tell whether or not a given sinus is present, and if present whether, on an anatomic basis, it has clinical significance. The importance of its study approaches that of its study in the adult.

At necropsy I have seen an unsuspected necrosis of the ethmoids in an infant, aged 16 months. I have seen a 2 months' old infant, the cause of whose death, two pathologists stated after necropsy, was a paranasal sinus infection. Another infant, aged 6 weeks, died while it was under treatment for acute paranasal sinus disease. This infant had pus under pressure in every paranasal sinus. The pathologist stated that sinus disease was the cause of death.

An examination of the nose through the mouth in cases of posterior clefts in infants from 12 to 18 months of age frequently reveals unmistakable evidence of paranasal sinus infection. I think that the most common cause of a poor result from an operation on a posterior cleft in my service is the presence of an incurable paranasal sinus infection.

Important etiologic factors in the production of paranasal sinus disease are climate and diet. Moist, cold, changeable weather predisposes, as does also a diet poor in fats. The most common source of infection of the sinuses is from adenoids and diseased tonsils. Not only do these structures infect the paranasal sinuses by direct contiguity of tissue and through the lymphatics, but adenoids at least may mechanically cause infection of the sinuses.

In some of Warren Davis' specimens I noted that large bunches of adenoids extended from the nasopharynx downward and forward so far as to form, with the roof of the nose, an angle of about 60 degrees. Such a condition is naturally the best kind of a trap for the collection of secretion, which is driven backward in the nose to the nasopharynx. Adenoids in this way may keep constantly in the upper posterior part of the nose a mass of secretion which, being stagnant, would soon become mucopurulent. This is one of the ways in which adenoids may cause sinusitis.

In cases of congenital atresia of the posterior nares that have come under my care, all the children have suffered from paranasal sinus disease. Through the

3. Dean, L. W.: Tr. Am. Laryngol., Rhinol. & Otol. Soc., 1925.

kindness of Dr. Prentiss in the anatomic laboratory, I saw a dissection of the head of a man, apparently 45 years of age, with a congenital bilateral bony occlusion of the anterior nares. It is interesting that the sinuses of this person were perfectly normal. Acute infectious diseases, especially influenza, are responsible for many cases of sinus disease.

The symptoms of paranasal sinus disease in infants and young children are nasal discharge and nasal stoppage. The history of postnasal discharge so common in adults is conspicuous by its absence; infants and young children swallow the postnasal discharge and do not expectorate it.

Sneezing is a very common symptom, especially in infants. In acute paranasal sinus disease, fever and leukocytosis are present.

Headache I have not found present until after the age of 5. Paranasal sinus pain is not common.

Cervical adenitis is frequently present. Cellulitis in the orbit or other neighboring structures is sometimes seen.

Very suggestive of chronic paranasal sinus disease is a condition characterized by listlessness, poor appetite, underweight, poor color; in short, the condition commonly caused by diseased tonsils and adenoids. It persists, however, after the removal of the tonsils and adenoids. With a negative report from the pediatrician so far as the systemic condition is concerned, if this condition persists after the removal of the faucial and pharyngeal tonsils, it suggests the presence of paranasal sinus infection.

Perhaps the most common symptom is repeated colds persisting after the removal of tonsils and adenoids. A hypertrophy of the lymph nodes on the posterior pharyngeal wall persisting after the removal of tonsils and adenoids is suggestive.

The diagnosis of paranasal sinus disease in infants and young children is not difficult. One must familiarize oneself with the appearance of the normal nose in this class of cases. Anterior rhinoscopy gives information. The roentgen ray is a most valuable aid; it not only gives information as to whether or not a given sinus, on an anatomic basis, has clinical significance, but it also frequently indicates whether or not it is diseased. The use of the nasopharyngoscope is just as valuable in the infant as in the adult.

The maxillary sinuses in infants can be readily aspirated and their contents examined microscopically and by means of cultures; the sphenoidal sinus may also be aspirated and sounded.

The prognosis as a rule is good. The treatment of this class of patients is very satisfactory.

What I have to say regarding the treatment of paranasal sinus disease in infants and young children applies to the treatment of this condition in Iowa. Our moist, changeable winter climate is a very prolific producer of paranasal sinus infections. It prevents a cure in many cases of chronic sinusitis. Certainly paranasal sinus disease is a different thing in Iowa than in Tucson, Ariz. Patients who do not respond to treatment in Iowa improve as if by magic if they go to Arizona.

In short, the thing that has the greatest bearing on the prognosis in chronic paranasal sinus disease in infants and young children is the ability of the patient to seek a proper climate. Naturally this is the most important thing in the therapy.

The second most important thing in the treatment of paranasal disease in infants and young children is diet. Dr. Amy Daniels, the research dietitian in the department of pediatrics in the University of Iowa, has expressed her opinion regarding this matter as follows:

> We have observed that animals fed diets quite lacking, or very low in the so-called fat soluble vitamin (vitamin A) are subject to paranasal sinus infections, infections of the middle ear, a condition which precedes the eye manifestations, xerophthalmia, characteristic of animals fed diets low in this vitamin. In such animals, the addition of substances, butter fat, cod liver oil, leafy vegetables, etc., which are rich in vitamin A corrects the condition if dietary therapeutics are inaugurated in time. Whether or not the paranasal sinus infections in children are infections superimposed on an undernourished condition, the result of diets low in the fat soluble vitamin, is not clear. It is significant, however, that in general those babies receiving feeding formulas low in fat, carrying from 1 to 1.2 per cent. on the total mixture, have shown signs of mastoid infection, whereas those infants receiving diets carrying a fairly high percentage of available fat, from 2.5 to 3 per cent., have shown no signs of mastoid infection. When a child has a paranasal sinus infection, the diet alone cannot correct the condition. The source of the infection must be removed first and then proper dietary regimen instituted. Excepting for babies, the diet should contain a fairly liberal amount of butter, vegetables, fruits, milk, eggs and cereal foods. So far as possible, all fat given should be supplied in the form of butter or cream. Succulent vegetables, at least two servings a day, and fruits, especially orange juice, should be used freely, since these furnish the antineuritic vitamin necessary for appetite stimulation. The amount of carbohydrate foods should be limited, for there is a tendency to the use of too much bread, potatoes and cereal in the diets of most children. To make sure that there is a liberal amount of the fat vitamin being supplied, cod liver oil once or twice a day is also given. In cases of this sort it is essential to see that the diet prescribed is taken. Children have food prejudices and frequently choose those foods, more especially the carbohydrates, to which they are accustomed.

Dr. George Smith, the assistant professor of bacteriology in the Yale University School of Medicine, working with Dr. Isabel Wason, has come to the conclusion that there is in deficiently fed animals definite evidence of a disturbance in antibody formation, that is, bactericidal substances and opsonins. They feel that these changes are indirect, being dependent on a modified cellular activity induced by failure to provide a proper regimen.

Dr. Lambert, professor of pathology in the Yale University School of Medicine, working with Dr. Judkin, came to the conclusion that the experimental xerophthalmia produced in rats fed on diet deficient in fat soluble vitamin A are essentially inflammatory and are obviously bacterial in origin. His idea is that such animals by a faulty diet are rendered particularly susceptible to infection. He further says that it is interesting and difficult to understand why the infection should involve certain tissues particularly, such as the conjunctiva, and, as we have found in Iowa, the paranasal sinuses. He also says there may be other infections which have been overlooked. He further calls our attention to the fact that on a different kind of deficient diet which Dr. Underhill has employed in dogs in an effort to reproduce pellagra experimentally, a very different infection, namely, a widespread and severe stomatitis and pharyngitis, is brought about, all of which, Dr. Lambert feels, points to a possible relation between diet and infection.

In calling attention to these matters, I do not wish to give the impression that, because at Iowa it has been found that rats fed on a defective diet, one deficient in fat soluble vitamin A, developed in every case an

infection of the paranasal sinuses and that this infection has not been found in any normal rat or in any rat fed on a diet deficient in calcium when experimental rickets has been produced, it is the absence of the fat soluble vitamin A in foods which is responsible for the presence of paranasal sinus infection in infants and young children. I do feel, however, that all the observations I have cited suggest that errors in diet play a most important part in causing paranasal sinus infection in this class of cases, and that correction of errors of diet is a most important therapeutic agent. I have taken half a dozen cases of chronic paranasal sinus disease in infants and young children from 3 to 7 years of age, and after doing everything I could from the rhinologic standpoint have turned them over to Dr. Daniels for feeding, with a most remarkable improvement, not only in the paranasal sinus disease but also in the outlook of the patient. These patients remained in our ward under the same conditions that had previously existed, and the same treatment was continued. The only difference was the change in diet.

In addition to climate and diet, proper hygienic conditions as to dress, footwear and the living and sleeping rooms is of importance.

Certainly in acute paranasal sinus disease in infants and young children, bed rest, diet, ventilation of the room and sunlight are the essential things in its treatment. This, with a hot nasal irrigation followed by dropping into the nose some penetrating antiseptic, such as protargin mild or mercurochrome-220 soluble, with perhaps suction treatment, is all that is usually necessary.

In every case of chronic nasal sinusitis, diseased tonsils and adenoids, if present, must be removed. In one baby, aged 18 months, with a posterior cleft after the removal of adenoids, the most persistent treatment for two months would not obliterate a hemolytic streptococcic sinus disease. The tonsils were diseased. It was considered inadvisable to remove these before closing the posterior cleft because of the contraction of the pillars of the fauces. As the cleft could not be closed until the sinus disease was cured, the tonsils were finally removed. Following their removal, the nasal sinus disease rapidly disappeared and the posterior cleft was readily closed.

Eighty per cent. of our chronic cases of nasal sinus disease in infants and young children have been cured by the removal of tonsils and adenoids without any other treatment. These favorable results, I feel, are due in great part to, first, the age of the patient, excluding long chronicity; and, secondly, the comparative infrequency of nasal obstructive lesions in this class of cases. While nasal obstructive lesions in infancy and early childhood are not common, they sometimes are present and are important etiologic factors in the production of the sinus disease. In such instances, this condition must be corrected if the work can be done without interfering with the development of the nose.

The local treatment of chronic suppuration of the paranasal sinuses in this class of cases consists of nasal irrigation, suction treatments and the use of protargin mild or some similar drug. An alkaline solution as hot as can be comfortably borne should be used. The container should not be more than 18 inches above the head, and the patient should lie on a table face downward and with the head lowered over the end of the table. The fluid is lowered into one nostril and flows freely from the other without coming in contact with the pharyngeal opening of the tube. The protargin mild may be introduced in the nares by using an eye-dropper. This form of treatment should be continued only for a few days.

In chronic maxillary sinusitis it is only sometimes advisable to aspirate the maxillary sinuses and to inject 1 per cent. protargin mild or some similar drug. This is done by passing a very small trocar through the meatal wall into the sinus. A long, blunt needle, to which is attached a Luer syringe, can be inserted into the sinus through the trocar. The sinus is easily aspirated, and the protargin mild is injected.

Rarely is it necessary to make some opening into the antromeatal wall through which the sinus can be daily irrigated. I doubt that it is very necessary to open the maxillary sinus by the buccal route in infants and young children. Only very rarely is it necessary to operate on the ethmoidal and sphenoidal sinuses. They should be operated on only when the sinusitis refuses to yield to persistent energetic treatment and there is a severe local or systemic complication that would justify operating.

With proper meteorological conditions, first of which is sunlight; with proper diet, especially one rich in fats; with the removal of causative factors in the upper respiratory tract, first of which is infected lymphoid tissue in the nasopharynx and the oropharynx; with simple nasal treatment and perhaps antrum puncture—an apparent cure of almost all cases of paranasal sinus suppuration in infants and young children can be secured.

ABSTRACT OF DISCUSSION

Dr. John J. Shea, Memphis, Tenn.: The end-results of sinus surgery in children compare favorably with those obtained in adults. The initial improvement is generally gratifying, but the attainment of permanent relief is difficult, for the disease tends to be progressive and may be based on an inherited weakness. Radical surgery on the paranasal sinuses of children is seldom necessary, and when instituted requires protracted postoperative care the same as radical mastoid surgery on the growing ear. In both instances the radical element is overcome by the further growth of the sinus or the mastoid process. In the past we have been taught to believe that any surgical intervention would stop the growth and the development of the external nose and the paranasal sinuses. This, I believe, is an error. Disease will arrest the development of the sinuses, but by reestablishing the normal ventilation and drainage of the undeveloped sinuses through surgery they will begin to grow again and in many instances regain the lost development. In fact, it has been our experience that the sinuses must show new growth before the pathologic condition can be considered corrected. No damage to growth and development of teeth has been found to follow intranasal drainage of the antrums, but the time has been too short to determine its influence later in life on the teeth. My technic is as follows: An antrum trocar knife is inserted under the inferior turbinate, and the nasal wall of the antrum is pierced in such a manner that the point of the knife will be directed upward and outward. This reduces the possibility of any damage to the external wall of the antrum, and the height of the sinus is sufficient to insure against injury to the floor of the orbit. It is important to resect the window as far posteriorly as possible, as this insures a more permanent opening and can be accomplished by having the back of the blade serrated and using it as a saw. With a rasp, the anterior end of the window is sufficiently enlarged to allow the insertion of a rubber catheter. The catheter is introduced into the antrum over a trocar, and when it is in place the trocar is slipped out, leaving the tube protruding from the window into the vestibule of the nose. The tube is then trimmed to fit into the ventricle of the vestibule, which will prevent it from being lost.

DR. THOMAS E. CARMODY, Denver: We have found, as Dr. Dean has brought out, that silvol gives relief in many cases. We have also found that children with cleft palate are more prone to be infected than normal children.

DR. ROBERT F. RIDPATH, Philadelphia: Dr. Dean has unquestionably had more experience with sinusitis in children than the majority of us who work in this particular line. There is no doubt also that there is more infection or empyema of the sinuses in children in the Mississippi Valley than we have found around Philadelphia. I say this because Dr. Dean quoted a great many cases, and yet Dr. Skillern and I seldom see sinus disease in children. This, of course, can be attributed to two things: (1) We may not have quite as much sinus infection in children as they have in other places; and (2) we do not recognize it when we see it. Dr. Shea and Dr. Carmody spoke particularly of infection in children, concerned with the antrum or the maxillary sinuses. The sinusitis in children which is more prevalent in Philadelphia than any other is empyema of the ethmoid region. I have had only four cases of maxillary sinusitis or empyema of the antrum of children in the last two years, whereas I have had a number of cases, ten times as many, perhaps, of empyema of the ethmoid region. This is probably due to the infection being unrecognized by the general practitioner, and the disease has gone on to the place where there is fistula formation a little below the inner canthus of the eye. The physician sends the patient to the ophthalmologist thinking it may be a condition of the tear duct, not recognizing that it is an empyema of the ethmoids. To cure this, unfortunately the physician or the ophthalmologist has frequently opened the fistulous formation externally below the inner canthus of the eye. This has produced a more or less permanent fistulous condition, whereas if it had been recognized as an ethmoidal infection, the curing of the condition would be a matter of internasal technic; i. e., retraction of the middle turbinate and drainage of the ethmoid cells.

DR. JOSEPH H. ABRAHAM, New York: Dr. Dean spoke about diet. I have been interested in the subject for years and should like to ask him in reference to acetonuria complicating sinus cases. I have markedly improved and, in the majority of cases, cured patients of acetonuria before undertaking operative procedures. These cases are treated by proper diet, high colonic irrigation with a 2 per cent. sodium bicarbonate solution, and the internal administration of sodium bicarbonate. As to climatic conditions, I am glad the author said that this should be a hospital operation. I do not like to operate on these patients during the early winter months if I can help it, owing to the fact that ordinarily the temperature of the hospital is about 70 F. when the outside temperature is 50 or 60 F., or lower. Allowing a patient to leave the warm temperature for the cold produces a marked contraction or dilatation of the blood vessels supplying the mucous membrane, producing a mild stimulation with an increased flow of mucus, which retards the healing process. Therefore, these children should be kept as warm as possible while operative procedures and local medications are being employed. When the acute stage and the reaction subside, these patients can come to the office for treatment. I have been experimenting with dyes in the treatment of accessory sinus disease for three or four years. I have discarded protargin mild and preparations of that kind in favor of the dyes. I use a 1:250 solution of acriviolet injected into the sinuses, allowing it to remain for two days. This has a wonderful bacteriostatic action. I feel that Dr. Dean should observe his bacteriologic work on the secretions from the sinuses before and after the dye has been applied. Usually it is impossible to obtain cultures of any bacteria in the pus after three or four injections of the dye. It may be necessary, after dyes have been used four or five, maybe ten, times, to resort to the use of some astringent preparation. I prefer silver nitrate in these cases. In regard to the roentgen ray, I should like to hear a report on the chest findings in these cases. I think you will be astonished to find marked mediastinal glandular enlargement and infiltration of the bronchioles. I was also much impressed with the bacterial cultures from these pus cases, and my findings in almost every case were *Streptococcus hemolyticus*, and in the rheumatic cases *Streptococcus viridans*, and in a few cases *Staphylococcus aureus*.

DR. H. I. LILLIE, Rochester, Minn.: The experience we have had in the Northwest with these cases is about the same as Dr. Dean's. The important point he brings out is that 98 per cent. of the patients get well with treatment. In the winter these children live inside, in a very dry temperature, and then they are taken outdoors for an airing. This results in a tremendous shock to the nasal mucous membrane, producing what might be called a simple inflammation, on which can be superimposed a pyogenic infection, resulting in suppurative rhinitis, and involvement of the paranasal sinuses. This can be controlled by improving the living conditions. In most homes not enough attention is paid to the relative humidity, and it has been generally thought conducive to the good health of children to have them sleep in a cold room; but those who have seen upper and lower respiratory infections in children know that these children do better in a warm, moist temperature. If more attention were paid to that factor, we would, perhaps, have less paranasal and upper respiratory infections than we do. The treatment as carried on by Dr. Dean has been found very satisfactory. In a sense, it is a hospital treatment, but it can be carried out in the office, particularly if the living conditions of the children can be controlled. In eliciting the history from parents, we frequently find that these children past the infant stage are peculiar about their diet. They are faddy and avoid eating fats. They will pick off the fat from their meat and they do not like butter. In a small number, merely by changing the diet and making them eat a balanced ration, great improvement has taken place.

DR. SIDNEY ISRAEL, Houston, Texas: I cannot agree with Dr. Dean as to the value of the roentgen ray in the diagnosis of these sinus conditions. It has been my observation that the majority of men who are doing roentgen-ray work have little interest in sinus roentgenograms, and the technic consists in merely placing the patient's head on the table and making an exposure. We know that it requires more than that to get an accurate outline of the sinuses, so far as the determination of pathologic changes are concerned. We have carried out extensive observations and feel that if roentgenologists would pay more attention to the requirements of roentgen-ray study of the sinuses the roentgen ray would be of more value. We have also maintained that the rhinologists should be in position to interpret roentgenograms satisfactorily. In taking a picture of the sinuses, particularly the maxillary antrums, there is one large factor to be considered, and that is that the petrous portion of the temporal bone really overshadows the antrum and often gives rise to a diagnosis of maxillary sinus disease. In the proper position, with the chin and nose on the plate, and the forehead off the plate, we get a beautiful picture of the maxillary sinuses with no overlapping of the petrous portion of the temporal bone. With the proper picture we usually get a true anatomic outline of the sinuses and the contents. In disease of the sinuses, there is a typical fuzziness wherever a pathologic condition is present.

DR. LEE W. DEAN, Iowa City: Dr. Abraham brought out an excellent point with regard to the use of dyes. The diet mentioned by Dr. Lillie is the most important item in treatment. With infants and young children it is not only necessary to prescribe the proper diet, but they must be watched and fed carefully in order to see that they take the diet that is ordered.

New Hazards for Old.—Mercury poisoning was formerly a great hazard of the mirror industry. The silvering of mirrors today is done largely with silver nitrate instead of with mercury amalgam. According to the *New York Industrial Hygiene Bulletin*, workers have found that sodium cyanid will remove from their hands the black discoloration caused by the nitrate, and, with little thought of danger, rub lumps of cyanid on their hands. Serious accidents may thus occur. If the hands are not well cleansed, sodium cyanid may remain on the skin, and, when food is handled thoughtlessly, find its way into the mouth.

PROLAPSE OF IRIS AFTER CATARACT EXTRACTION *

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Prolapse of the iris as a postoperative complication of cataract extraction usually is considered serious. The chief danger, as expressed by numerous authorities, is the liability of an eye in which it is present to become affected with inflammation of the uveal tract, weeks, months or years after the healing of the wound. It is quite probable that the danger is overestimated, as every operator of considerable experience will testify; and yet the fact that the condition does occur, and that it offers even a minimum amount of danger, should prompt us to adopt those measures most likely to avert it, and give it proper attention when it does occur.

There can be little doubt that the rather general tendency on the part of nearly all operators to do the combined operation has lessened the number of cases of postoperative iris prolapse, especially when a generous conjunctival flap has been secured and appropriate effort has been made to replace the iris and free the angles of the wound of tags of iris tissue. There also is the added protection afforded by the substitution of lid retractors for the speculum, the paralyzation of the lid muscles by procain injections, recently popularized, and the avoidance of unnecessary and meddlesome early inspection and dressing of operated eyes.

The advantages of an iridectomy are that it not only facilitates the extraction of the lens, but reduces the aqueous current, which tends to carry the iris between the lips of the wound where it is apt to become incarcerated.

A generous conjunctival flap hastens closure of the wound, thus tending to prevent infection as well as subsequent prolapse of the iris; but in the event of a small prolapse brought about through trauma occasioned by untoward action of the patient or careless handling at the first dressing, the action of the flap has a tendency to cause the iris to return to the anterior chamber. Payne [1] reports three cases of iris prolapse under a conjunctival flap in which the iris returned to the anterior chamber, two within two weeks, while the third showed no signs of returning at the end of six weeks; but, when seen a week or two later, it had returned to the anterior chamber. His explanation of this is that the iris does not bunch up under the conjunctiva, but instead lies out flat and has no union with the cornea or conjunctiva. The iris cannot reach to the top of the flap, which heals above and around it, and the space that contains it is practically a part of the anterior chamber. Without a conjunctival flap the iris would be bunched up in a hernia form, and a union of the cornea around this hernia chokes it off so that it cannot return to the anterior chamber.

Paralysis of the orbicularis by procain injections also plays an important part in the prevention of iris prolapse, for it prevents squeezing of the lids during the operation and for a considerable time afterward, while the wound edges are becoming more effectually sealed.

Probably a very large percentage of the cases of postoperative iris prolapse occur during the first twenty-four hours, and the precautions mentioned will aid in averting such a complication; but there is another all important factor in the causation of the condition, and that is the injudicious and unnecessary first inspection and dressing at the end of the twenty-four hour period, a practice very generally followed but which is a common cause of disaster. Some untoward action on the part of the patient, or the pressure on the eyeball occasioned by the effort to look down at the command of the attending surgeon, is often all that is required to change a freshly sealed wound and a promise of a good result into a reopened wound with iris prolapse.

It is inexcusable curiosity that leads to inspection of the cataract wound at the end of twenty-four hours. If the appearance of the eye was satisfactory at the completion of the operation, and the subsequent twenty-four hours have been uneventful and the eye comfortable, then why remove the dressings until three, four or even five days have elapsed? Certainly if anything unfavorable has happened there will be some warning, and without that warning an inspection and dressing of the wound at twenty-four hours is nothing short of meddlesome. An infected eye usually gives warning through pain or discomfort, and certainly will offer evidence of the infection as soon as the eye is opened. If prolapse of the iris has occurred, nothing would be gained by looking at it; for if the eye is quiet and there is no pain, the prolapse should be let alone, temporarily anyway, and any effort to inspect the wound probably would result in opening the wound wider and lead to an increase in the size of the prolapse. However, if curiosity cannot be controlled, or if there really appears to be good reason for inspecting the eye at the end of twenty-four hours, then the examination should be made from in front, the upper lid should be raised very gently by traction on the bony orbital rim, and the patient should not be asked to look down.

Incarceration of small folds or tags of iris in the corneal wound, without true prolapse, is, as pointed out by Roemer-Foster,[2] of very frequent occurrence, despite the most painstaking efforts to free the wound of all iris tissue. In nearly all these cases the amount of tissue incarcerated is not sufficient to interfere with satisfactory healing, even though the wound may remain irritable a little longer than normal, and, as a general rule, a firm scar results. This, as pointed out by Killick [3] and other observers, generally speaking, does not constitute a danger to the future well-being of the eyes. In fact, Parsons,[4] in his work on ocular pathology, states that fragments or tags of iris that heal in a wound undergo atrophy and show little tendency to cause inflammatory reaction, and most operators of experience can corroborate the statement. On the other hand, both de Schweinitz [5] and Wood [6] are of the opinion that entanglement of the edge of the cut iris in the angle of the wound in combined cataract extraction may be the determining cause of glaucoma. A case of that kind in my own practice, more than twenty years ago, seems to bear out the

* Read before the Section on Ophthalmology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Payne, S. M.: New York M. J. 115: 466 (April 19) 1922.
2. Roemer-Foster: Textbook of Ophthalmology, Ed. 2, p. 237.
3. Killick: Tr. Ophth. Soc. U. K., 34.
4. Parsons, J. H.: Pathology of the Eye, New York, G. P. Putnam's Sons 1: 160, 1908.
5. De Schweinitz, G. E.: Diseases of the Eye, Ed. 10, Philadelphia, W. B. Saunders Company, p. 777.
6. Wood, C. A.: System of Ophthalmic Operation, Chicago, Cleveland Press 1: 771-985.

opinion that the condition is not entirely as innocent as is believed by the authorities quoted, and yet an unfortunate after-result is not common.

Protrusion of the iris between the lips of the wound so as to form a true prolapse is of more importance, and forms a real complication, because the prolapse interferes with the healing of the wound and lays the whole uveal tract open to infection, which may not only destroy the eye that has been operated on but also may lead to sympathetic inflammation of its fellow. The extent of the prolapse, whether covered by a conjunctival flap or not, and the length of time that it has existed, are determining factors in the treatment to be adopted. A prolapse discovered at the first dressing, from one to four days after operation, no matter as to size, may be let alone with safety if it is completely covered by a large conjunctival flap. Such a prolapse may reduce itself within the succeeding week or two, and if not may be operated on later, though even if left to nature the result is rarely anything but favorable, as the tendency is toward a considerable reduction in the prolapse and the early atrophy of the iris; closure of the wound by scar tissue covered by a protecting layer of conjunctiva generally insures a quiet eye for all time. A number of such cases, in my own practice as well as in the practice of others, some of years' standing, have come under my observation. This course seems preferable to one requiring the reopening of the wound and excision of the prolapsed iris.

On the other hand, a prolapse of the iris not covered by a conjunctival flap, discovered from one to four days after operation, should be treated by excision. Attempts to replace it should be avoided on account of the risk of infection of the interior of the eye, and for the further reason that a replaced prolapse of that type is very apt to prolapse again. In my own opinion there are advantages in postponing the excision operation until the fourth or even the fifth or sixth day, in order to take advantage of a firmer healing of the wound outside the area involved in the prolapse. As Duane[7] well says, "prolapses four or five days old can be excised as well and as completely as those just formed." The inflammatory exudate at this stage will not be found to have firmly sealed the prolapse to the edges of the wound, and careful and complete freeing of the prolapse with a bent iris spatula is possible, after which it may be excised with iris scissors and then covered with the original conjunctival flap. The difficulties attending this operation are confined mostly to the overcoming of the irritability and sensitiveness of the eyeball. In extremely nervous patients a general anesthetic may be required; but usually the operation may be accomplished under local anesthesia produced by the free use of a sterile 5 per cent. solution of cocain to which 20 per cent. of epinephrin solution has been added, followed by careful subconjunctival injections of 2 per cent. procain through a fine and sharp pointed needle, and lastly the application of a crystal of pure cocain to the operative field a few minutes before operating. A hypodermic injection of morphin, one-eighth grain (8 mg.), and scopolamin, one two-hundredth grain (0.3 mg.), one-half hour before the operation, not only helps to produce tranquility for the patient but is an adjunct in the production of local anesthesia. The lid elevators should be used in place of the speculum, with a view to averting any sudden squeezing of the lids on the part of the patient, and no fixation forceps should be used. A conjunctival flap, of whatever size, should be preserved by turning it over the cornea before the prolapse is excised.

If the wound is entirely within the cornea, special attention should be devoted to the freeing of the lips of the wound of all tags of iris. This usually is best accomplished by the use of the iris spatula, after which the tags can be drawn out with fine curved iris forceps and excised. Subsequently the edges of the wound, both above and below, may be freshened by gentle scraping with a narrow bladed, sharp pointed canaliculus knife, the blade of which is bent at an obtuse angle. While it is possible for such wounds to heal promptly and firmly, there can be no doubt concerning the added protection afforded by a conjunctival flap after the manner of Kuhnt, and such a procedure is recommended. Before the eye is closed, a drop of 5 per cent. aqueous solution of mercurochrome-220 soluble may be instilled, followed by a free application of White's ointment. Rest in bed and the use of ice cold, moist compresses over the eye are decidedly beneficial in promoting healing.

In those cases in which an enormous prolapse occupies nearly the whole of the wound, Herbert[8] recommends excising only or mainly the part of the iris uncovered by the conjunctival flap, and says that the remainder tends to flatten down well if it does not retract altogether from the incision, which latter conclusion corresponds with that of Payne[1] that prolapse of the iris, if completely covered by the conjunctival flap, nearly always reduces itself.

A postoperative prolapse of the iris that is not given attention during the first five or six days should not be disturbed until later or until the wound outside the area affected by the prolapse has healed firmly. Not a few of these cases will develop a cystoid cicatrix; and even though such an eyeball may be free from congestion and reasonably free from tenderness to touch for a long period, there is ever the possibility that it may at any time become the seat of either a mild or a severe uveal disturbance, or even the introduction of infection that will result in prompt destruction of the eyeball. Wagenmann[9] has recorded the results of the microscopic examination of eleven eyeballs affected in that way. In all, micrococci were found in the interior of the eye. The suppurative process appeared in all the cases to have started from the cicatrix, with the condition as one of new infection through the cicatrix, and not due to micrococci having entered the wound before it was healed and then remaining for a long time inert, or as due to organisms brought to the wound by the circulation and there finding a congenial soil.

Some of the cases of postoperative prolapse of the iris never do quiet down, but the eyeball remains congested and sensitive to light and touch until given appropriate attention. Quiet cases, even though the prolapse may be extensive, offer the least difficulties, for local anesthesia, in the manner already described, is quite sufficient for the operative work deemed necessary. Those attended with mild congestion, photophobia and marked tenderness to touch are the ones that require general anesthesia. In practically all these cases the prolapsed iris will be found not covered with

7. Duane: Duane-Fuchs Textbook of Ophthalmology, p. 541.

8. Herbert: Tr. Ophth. Soc. U. K., 34.
9. Wagenmann, quoted from Roemer-Foster, p. 238.

a conjunctival flap. If the condition has existed beyond the eight day period, when adhesions are supposed to have formed, and the prolapse is firmly fixed between the lips of the wound, the separation of the atrophic and friable iris is a more difficult matter, but can be accomplished with the aid of the narrow short bladed and sharp canaliculus knife bent at an obtuse angle. All portions of iris tissue should be scraped away carefully and the wound covered by a Kuhnt's conjunctival flap previously dissected up. In two cases of this character in which operation was performed more than a month after the extraction, the results were very satisfactory. But little difficulty was encountered in freeing the wound of the friable iris tissue by scraping the wound edges; the conjunctival flap brought about a very good scar, and, so far as is known, the eyes have been quiet up to this time. If the iris tissue is firmly fixed in the wound and difficulty is encountered in freeing it, we may content ourselves with a radical excision, without opening the original wound, and covering the site with a conjunctival flap.

The use of the cautery for the removal of cystoid cicatrices as well as small knuckles of iris tissue has been recommended by numerous operators, but, as is pointed out by Landolt,[10] Collins,[11] Herbert,[8] Gifford [12] and others, the resulting firm, smooth scar does not insure against infection at any time in the life of the patient. Thus, Herbert [8] reports two late infections following cautery, and Gifford [12] reports seven other cases from the literature. Landolt,[10] Herbert,[8] Ramsay [13] and Gifford [12] are emphatic in their expressed opinion that if the actual cautery is employed to reduce cystoid cicatrices, or small prolapses of the iris, the cautery wound should be covered with a Kuhnt conjunctival flap. My own preference is the excision operation already described, supplemented by the Kuhnt conjunctival flap; though I confess that several years ago I used the actual cautery in a few cases of cystoid cicatrix or to reduce small beads of iris prolapse, did not cover the wound with a conjunctival flap, and secured very satisfactory and lasting results. After learning of the disastrous sequelae that sometimes follow cauterization of iris tissue, I abandoned the practice.

SUMMARY

1. Postoperative prolapse of the iris is less likely to occur in those cases in which the combined operation has been performed; in which a large conjunctival flap has been made, and in which the wound has not been submitted to unnecessary and meddlesome early inspection and dressing with its attendant dangers.

2. Prolapse of the iris after cataract extraction can be given appropriate attention safely and effectively from five to six days after its development, and such a delay offers the advantage of a firmer healing of the wound outside the area involved in the prolapse.

3. A postoperative prolapse of the iris, well covered by a conjunctival flap, requires no immediate attention, as in the large proportion of cases it will correct itself; and even if a small proportion of iris should heal between the lips of the wound, it flattens out and is covered by the protective conjunctival flap, which makes the eye relatively safe from infection.

4. An iris prolapse, whether large or small, not covered by a conjunctival flap, is best treated by excision after freeing the iris tissue from the lips of the wound, after which the wound should be covered with a Kuhnt conjunctival flap previously prepared. This is best done from five to six days after the development of the prolapse, or before the adhesive inflammation has firmly fixed the iris tissue in position.

5. A prolapse of the iris that has existed for a considerable time should be treated by excision, and the wound covered by a Kuhnt conjunctival flap. This applies to a large as well as a small prolapse, though the latter occasionally will present a smooth, flat cicatrix following excision alone, though as a routine practice this is not recommended.

6. Cystoid scars and small beads of prolapsed iris may be reduced with the actual cautery, but the wound always should be covered with a Kuhnt conjunctival flap. Generally speaking, the actual cautery in the treatment of any form of incarcerated or prolapsed iris is not recommended.

7. In nearly all cases of postoperative prolapse of the iris, operation can be done safely and efficiently under local anesthesia produced with four applications of a 5 per cent. solution of cocain to which 20 per cent. of epinephrin solution has been added, instilled at four minute intervals, supplemented by subconjunctival injections of 2 per cent. procain, and a preliminary hypodermic of morphin one-eighth grain (8 mg.), and scopolamin one two-hundredth grain (0.3 mg.), one-half hour before operating. A crystal of cocain on the prolapsed iris prior to excision increases the profoundness of the anesthesia. If the eye is irritable and very tender to touch, general anesthesia is preferable.

8. Previous to operation for prolapsed iris, the eyeball should receive antiseptic treatment with 50 per cent. solution protargin mild, or 5 per cent. aqueous solution of mercurochrome-220 soluble, and the operative field thoroughly douched prior to operation. Five per cent. aqueous solution of mercurochrome followed by White's ointment should be applied to the eyeball before the wound is closed. Rest in bed and ice cold compresses aid in healing. Of importance also is the avoidance of fixation forceps, the use of lid elevators instead of the speculum, and keeping the lids away from the operative field until not only the operation has been completed but also the antiseptics have been applied to the eyeball.

10. Landolt: Tr. Ophth. Soc. U. K., 34.
11. Collins: Tr. Ophth. Soc. U. K., 34.
12. Gifford, Harold: The Danger of Sympathetic Ophthalmia from the Use of the Cautery in Treating Iris Prolapse, J. A. M. A. 55: 386 (July 30) 1910.
13. Ramsay, A. M.: Brit. J. Ophth. 2: 554 (Nov.) 1918.

ABSTRACT OF DISCUSSION

DR. W. H. WILDER, Chicago: One of the most important items in the preparation of a patient for cataract operation is the production of perfect anesthesia and the control of the lid and eye muscles so that the operator may make a satisfactory incision, with a suitable conjunctival flap, a clean, smooth iridectomy, and extraction without undue force, and a proper replacement of the pillars of the coloboma by irrigation and spatula without the fear that the patient, feeling pain, will squeeze the eyelids and so cause disaster. Such anesthesia can be secured by dropping a 4 or 5 per cent. solution of cocain into the conjunctival sac, five or six times, at intervals of two or three minutes, and deep injection into the orbit around the ophthalmic ganglion of 1 or 1.5 c.c. of 2 per cent. procain solution. For this deep injection a slender needle, 3.2 cm. in length, is preferable. It may be passed through the lower lid just over the inferior temporal margin of the bony orbit directly backward until the point has passed behind the curve of the eyeball and then directed slightly inward and upward toward the ganglion. The injection may also partially block some of the members of the muscle cone,

usually the inferior rectus. The orbicularis may be blocked very effectually after the method of Van Lint by injecting 2 per cent. procain solution along the inferior and temporal margins of the orbit, with also a few drops above and below the inner canthal ligament. By such measures, carefully applied, I have found attempts at squeezing of the eyelids reduced to a minimum, making it possible for the operator to do his work with more assurance and thoroughness. Coughing, sneezing, straining from vomiting or from bowel movements, unnecessary movements in bed, discomfort from too tight or ill placed dressing or bandage, are frequent causes of partial or complete prolapse of the iris, even in cases that were left in excellent condition at the end of the operation. Of course, a good conjunctival flap properly replaced goes far to insure against such accidents or to minimize the prolapse. If the patient has a severe cough, the operation had better be deferred, if possible, until the cough is relieved. Sneezing frequently can be avoided by preventing drafts from striking the patient, especially in bald headed subjects. It is my practice to prepare the patient with a free cathartic the night before operation and a bowel flushing on the morning of the operation day just as for a general anesthetic, so that he may not have a bowel movement for two or three days. For the same reason, the patient is given a light diet for a couple of days after the operation. I am quite in accord with the author on the methods of treating the prolapse if it occurs. To attempt to replace it or to operate on it before the rest of the wound has been securely healed is, in my opinion, very hazardous and may result in disaster. I agree with him also as to the importance of the use of a conjunctival flap to cover the site of the prolapsed iris after this has been released so far as possible and properly excised.

DR. S. LEWIS ZIEGLER, Philadelphia: The greatest factor in causing iris prolapse after extraction is an irregular corneal incision. Where there is a smooth, even bevel of the corneal wound it is practically impossible to cause the iris to prolapse, unless direct traumatism is involved, without rupture of the conjunctiva. In the days when simple extraction was more popular, a large conjunctival flap usually encouraged an early closure of the wound; but occasionally the cornea would break open and the iris become herniated between the lips of the corneal wound. When marked prolapse occurred, it was considered quite necessary to reduce the hernia thoroughly with the iris spatula, and if persistent to excise a section large enough to free the angles and to prevent a recurrence of the prolapse. This is absolutely essential and, of course, is much easier to accomplish now that we have regional anesthesia to aid in a painless excision. I cannot agree with the author as to the danger of daily postoperative inspection. The patient who "howls the loudest" from pain is probably suffering from a simple retention of tears, while the patient whose eye is rapidly disintegrating from suppuration or iridochoroiditis, with open wound, may not "utter a whimper." Dr. Bulson is skilful enough to avoid the possible disaster that he describes. Others should train themselves not to rupture a fresh wound. If I cannot visit a patient recently operated on on the first day, I send an experienced nurse to examine the eye and make a report. If I can make a visit later in the same day I do so. That makes two examinations on the first day. Daily postoperative examination is a rule that I have always insisted on. The technic of covering an old prolapse that is not incarcerated or pinched with a Kuhnt conjunctival flap is good surgery. The danger of infecting a thin iris hernia is always present. Puncture of the prolapse with the galvanocautery may prove effective if the puncture is made by a quick thrust, but it should be watched carefully, as the possibility of danger cannot always be eliminated. The injection of scopolamin and morphin is most useful. I would suggest the addition of philocarpin nitrate, one-tenth grain (6.5 mg.), to this combination, since it neutralizes some of the bad effects of the other drugs.

DR. ALLEN GREENWOOD, Boston: I have the highest regard for Dr. Ziegler's opinion, but at this moment I am going to disagree with him in regard to the early examination of the eyes after cataract extraction. I well remember the remarks of one of the older physicians at a meeting when I was a young ophthalmologist, about "peeping Toms." He deprecated them very much indeed. I have never seen any bad results that I could have helped when I had failed to examine an eye for forty-eight hours, which is my custom. I am sure I have never seen bad results that I could have prevented by looking at the eye twenty-four hours earlier, and I feel strongly that Dr. Bulson is right when he says that unless there is some definite indication for opening the eye it is better not to for at least forty-eight hours. Sometimes I go even further and leave the eye alone a longer time.

DR. ALBERT E. BULSON, JR., Fort Wayne: Dr. Greenwood has answered the objection raised by Dr. Ziegler. I am quite in accord with what Dr. Greenwood has said concerning what we might call meddlesome inspection of cataract cases. I have never seen a complication following a cataract extraction that could have been avoided by earlier inspection of the eye. I sometimes do not inspect cataract cases for from seventy-two to ninety-six hours after operation. I am firmly convinced that if anything is happening that I ought to see there will be some warning of it, and some indication for inspection of the eye. I have seen numerous instances of complication that I am satisfied were due to early inspection, and some of them occurred in the early years of my own practice and some in the practice of my confrères.

ANAPHYLACTIC SHOCK AND FAILURE OF DENSENSITIZATION

AFTER ADMINISTRATION OF PNEUMOCOCCUS TYPE 1 SERUM *

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This case record is presented to display three unusual phenomena: 1. The patient developed fatal septicemia after surviving lobar pneumonia terminating in crisis by the aid of antiserum. 2. He became extremely sensitive in nineteen days after serum treatment, but the sensitization was not discernible by skin test. 3. Desensitization failed.

It is generally supposed that Rockefeller Type 1 serum will successfully and uniformly render the blood stream free from Type 1 organisms if given early in the disease or when septicemia has not yet developed. The lowest mortality rate occurs in Type 1 pneumonia in which blood cultures are sterile and serum is given. However, Lock [1] has recently reported four fatal cases of endocarditis similar to the one here recorded, three of which were treated with serum with no apparent effect. Palmer [2] has reported two such cases, and Bloomfield,[3] one. Camac [4] has reported instances in which sensitization could not be discovered by skin tests. But so far we have not seen the report of a case in which the prescribed method of desensitization has failed.

REPORT OF CASE

A Hungarian, aged 30, was admitted to Lakeside Hospital after three days of illness at home, suffering from obvious lobar pneumonia in the right upper lobe. A previous admission two years before had disclosed a chronic rheumatic valvular heart disease with aortic insufficiency, but at that time he was well compensated and was successfully operated on for hydrocele. On the second admission, the temperature

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1. Lock, E. O.: Pneumococcus Endocarditis, Boston M. & S. J. **191**: 913-926 (Nov. 13) 1924.
2. Palmer, W. W.: Pneumococcus Endocarditis, M. Clin. N. Am. **2**: 987 (Jan.) 1919.
3. Bloomfield, A. L.: Therapeutic Value of Antipneumococcus Serum, J. A. M. A. **81**: 1437-1438 (Oct. 27) 1923.
4. Camac, C. N. B.: Antipneumococcus Serum in Lobar Pneumonia, Am. J. M. Sc. **116**: 539-544 (Oct.) 1923.

was 40, pulse 100, and respirations 28. The white blood count was 9,800. The patient was very cyanotic and dyspneic on account of pleurisy; there was a large amount of very bloody sputum, and he was much troubled by cough. The abdomen was much distended, and on account of his general appearance and his heart complication, he was considered to be in grave danger.

His temperature remained in the neighborhood of 40 until the fourth day of his stay in the hospital, which was the seventh day of the disease, when it dropped abruptly below 38, with an accompanying drop from a pulse of 135 to 70, and a corresponding change in respirations in the nature of a crisis. In the meantime, his organism had been isolated and identified by the mouse method, and he was given intravenously three daily doses of 100 c.c. of antipneumococcus serum. These were given on the fifth, sixth and seventh days of the disease. There was absolutely no reaction to the treatment, unless the crisis can be interpreted as the result of the serum, which is doubtful, as the natural crisis was about due. Prior to the administration of the serum, the lung lesion had spread so that the entire right side and mucb of the left lower lobe were consolidated. Blood cultures, taken prior to the administration of the serum, were sterile, but regardless of this encouraging fact a bad prognosis was made, up to the very time of crisis.

The leukocyte counts, which were alarmingly low on admission, had risen to 30,000. After the administration of the first dose of serum, the count was 37,000, and after the second, it was 40,000. For four days following the crisis, the patient's temperature averaged about 38, pulse 80, and respirations about 30. The temperature then began to rise by successive stages, and on the sixth day had gone above 40, with a daily variation of 1.5 degrees C. This high temperature continued throughout the remainder of his thirty days' stay in the hospital. This unusually high fever was not accompanied by any alarming symptoms, and was associated with a leukocytosis varying from 15,000 to 40,000. As the result of a complexity of lung signs and roentgenograms, he was suspected of empyema and on one occasion was needled. Blood recovered from the solid lung showed no growth when a culture was taken.

On the twenty-first day of his disease, or sixteen days after the crisis, another blood culture was made and a large number of pneumococci of Type 1 were found. It was decided at once to give further serum treatment for this complication, and although skin tests were negative, as a matter of precaution the patient was presumably desensitized by small doses of pneumococcus serum given hypodermically at two hour periods. In all, seven doses of serum were thus given, starting with 4 minims (0.24 c.c.) and ending with 5 c.c. At no time was there any local or systemic reaction to the process of desensitization. He was accordingly given serum intravenously; but after 5 c.c. had been introduced carefully, he showed a profound anaphylactic shock, so that the injection was stopped.

In the following twenty-four hour period, desensitization was again attempted with exactly the same method, and another attempt was made to give serum intravenously, but on the second attempt he again had severe anaphylactic shock. After a consultation with Professor Karsner, he was then given two doses of serum each day for the next five days, until he died. The dosage was started at 15 c.c. with the expectation of raising it, but the highest dose he could be given was 25 c.c., which again caused a reaction. This dosage was considered safe, but proved to be wholly inadequate in controlling the infection. Blood cultures repeated after the serum therapy was instituted showed an increasing degree of bacteremia. The second culture showed 476 colonies per cubic centimeter; the third, 521, and the fourth, 592, all of Type 1 pneumococcus. The patient's serum at this time, four days before death, was titrated for agglutinins against his own organism and there was weak agglutination in 1:10 dilutions. The therapeutic serum being used was titrated and found to agglutinate at 1:40 dilutions. But on account of the tremendous shock from any but small doses of serum, it was considered unwise to give an adequate amount of specific serum.

In the last days of the disease, the patient developed a tremendous crop of petechiae and a loud systolic and presystolic murmur at the mitral area. Forty-eight hours before death, he was delirious and showed general rigidity. A lumbar puncture, done immediately after death, showed a moderately purulent spinal fluid, cultures of which yielded large numbers of pneumococci of Type 1.

COMMENT

This case presents several unusual features deemed worthy of reporting. First, it is distressing and paradoxical, to say the least, to see a patient that has recovered from lobar pneumonia by crisis, and has furnished sterile cultures from his consolidated lung, go on to die of septicemia and endocarditis caused by the same organism that produced the pneumonia. This contradiction may be somewhat modified by the fact that he had a valvular deformity due to an old rheumatic endocarditis, the site of which might be a point easily infected by a blood-borne infection. It is well known that these deformed valves are commonly the seat of secondary bacterial endocarditis. It would appear that the lungs and bronchi had developed a local immunity to pneumococci, while the heart, valves and blood had not.

Another unusual feature is the very severe sensitization induced within nineteen days by the use of pneumococcus serum. Still more unusual is the fact that he showed no cutaneous evidence of sensitization, and that all efforts by the approved technic were of no avail in desensitizing him so that a specific serum could be given him in adequate doses.

Why desensitization failed, is a question of much importance. When it was referred to Dr. E. E. Ecker of the department of pathology he offered the following discussion:

The problem of desensitization is not settled. Most of the work done has been on the guinea-pig, an animal that readily responds to desensitization by the use of homologous protein. Besredka has shown that, by the subcutaneous injection of homologous protein, the guinea-pig is desensitized in an average of four hours; by the intraperitoneal and intrathecal route, in from one to two hours; and by the intravenous or intracerebral method, almost instantaneously. The studies of Arthus make it appear that the rabbit and the chicken behave entirely differently. In the rabbit, not only does desensitization fail during ether, chloroform or chloral anesthesia, but a reinjection one hour after the animal has recovered from the induced crisis again causes typical reaction. Similar reactions can be obtained one, two and four days after desensitization with the homologous protein given under anesthesia or without. We have also seen chickens under anaphylactic shock that had survived a shock four days before. A renewed shock can also be obtained in a dog that has resisted a shock produced by the intravenous injection of the specific protein a short time before. If the injection is given over a period of ten to fifteen minutes, a less profound and lasting drop of the blood pressure is obtained. Atropin, morphin and chloroform anesthesia given to a dog before the toxic dose fails to counteract the drop in blood pressure and the incoagulability of the dog's blood.

In the case presented, then, not only did sensitization fail, but shock and redesensitization failed to inhibit the reaction. Since small doses of the serum were later injected without apparent effect, it may be construed as a slight degree of desensitization, a phenomenon that is qualitative rather than quantitative in character, as emphasized by Karsner and Ecker. The question of poor absorption does not entirely explain the case, because desensitization was twice attempted over a sufficiently long time and the patient withstood severe shock. Thus it would seem that in some cases the result of attempted desensitization in man may be similar to that in the rabbit, the chicken and, possibly, the dog. How much the state of the patient influenced the case, it is difficult to say.

NEONATAL PYELITIS *

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Although Hüttenbrenner,[1] in 1876, gave an accurate clinical description of pyelitis, this disease received very little attention from pediatricians until Escherich,[2] in 1894, reported seven cases of what he called "colicystitis." Two years later, Finkelstein [3] found pyelitis to be rather frequent in children, and in 1908 Goeppert's [4] monograph on ninety-seven cases appeared. Since then, many publications have dealt with various phases of this disease. Despite the wealth of contributions in recent years, only rarely is neonatal pyelitis referred to. The first two cases were reported in 1901 by Kovalosky and Moro.[5] Goeppert's series includes six infants under 3 months. Von Reuss,[6] in 1914, remarked: "The occurrence of pyelocystitis in the new-born is not frequent; at any rate, our knowledge of it is very defective." Wieland,[7] in 1918, contributed nine cases in infants under 6 months. Finkelstein,[8] in 1924, stated that he had repeatedly diagnosed pyelitis within the first two weeks of life; and Helmholz [9] says: "Pyelitis of the new-born is worthy of special mention because it is more common than is supposed. An unexplained fever occurring in the first two weeks of life may be due to pyelitis."

This brief clinical report on neonatal pyelitis is based on twelve cases seen in private practice in the last few years and on three cases reported in 1918 by Helmholz. It is submitted because: (1) The disease occurs periodically and may be easily overlooked; (2) the early symptoms are invariably referable to the gastro-intestinal tract or to the central nervous system, and (3) its occurrence at such an early age in a preponderance of male infants may shed some light on the route of the infection.

Goeppert, Wieland, Finkelstein and Helmholz found the new-born male more predisposed than the female. Thirteen of our fifteen cases were in boys. For some unknown reason the urinary tract of the young boy offers a more fertile habitat for *B. coli* infections. This organism was found in all but one instance (Case 4). No visible malformation or irregularity of the external genitalia could be detected in any of the patients. In eight, the prepuce was intact and adherent to the glans; in the remaining five, the circumcision had healed. In the last six years, ten young infants with hypospadias were seen—in none was a pyelitis found. In one of the two fatal cases (Case 4), *B. enteritidis* was found in the urine and spinal fluid. The infant died of a meningitis due to this micro-organism. In the other fatal case (Case 12), necropsy revealed: a congenital stenosis of the right ureter near the renal pelvis; suppurative cystitis, ureteritis, pyelitis and nephritis; multiple small abscesses of both kidneys; also an acute, generalized *B. coli* septicemia. This anomaly doubtless played an important rôle in the fatal outcome. The remaining thirteen infants recovered without exacerbations. In none of these did pyuria, nephritis or pyelonephritis persist.

Findings in Fifteen Cases of Neonatal Pyelitis

Case	Age at Probable Onset, Days	Weight, Pounds	Duration, Weeks	Infecting Organisms	Symptoms (in Order of Occurrence)	Outcome
1. B. B.	6	9	5	B. coli	Vomiting, 100 F., weight loss	Cured
2. H. P.	7	4½	5	B. coli	Vomiting, weight loss, pallor, 101 F.	Cured
3. R. J.	8	6¼	4	B. coli	Weight loss, diarrhea, 101 F.	Cured
4. R. G.	8	7	11	B. enteritidis	Cyanosis, fever, convulsions, meningitis	Died at 12 weeks
5. W. B.	9	6¾	3	B. coli	Vomiting, constipation, 101.8 F.	Cured
6. J. C.	10	7	5	B. coli	Diarrhea, 101 F., no gain	Cured
7. B. S.	10	8¾	7	B. coli	Fever 102.5 F., weight loss, tympanites	Cured
8. A. M.	11	7¼	5	B. coli	Anorexia, weight loss, diarrhea	Cured
9. B. Se.	15	9¼	4	B. coli	Cyanosis, 104 F., weight loss, diarrhea	Cured
10. J. W.	16	7	7	B. coli	Bloody diarrhea, pallor, weight loss	Cured
11. J. T.	18	7¼	4	B. coli	104 F., vomiting, diarrhea, tympanites	Cured
12. R. C.	21	7¼	4	B. coli	Cyanosis on 11th day, vomiting, pallor, weight loss, anorexia	Died at 7 weeks; congenital stenosis of right ureter; multiple abscesses of both kidneys; B. coli; septicemia
13. J. Wa.	24	6¾	12	B. coli	104 F., vomiting, tympanites	Cured
14. M. K.	28	7	3	B. coli	Projectile vomiting, weight loss, constipation	Cured
15. M. M.	28	6¾	8	B. coli	Projectile vomiting for 3 weeks; weight loss, constipation	Cured

In no instance were there signs or symptoms referable to the urinary tract. The onset was usually rather sudden. Gastro-intestinal symptoms were usually present several days before the diagnosis was made. The ashen pallor and anxious facies, characteristic of pyelitis, were often present within a few days after the onset. Fever was usually present but seldom above 101 F. The course may be stormy (Cases 4, 11, 13, 15) and protracted (Cases 4, 10, 13, 15) despite early diagnosis. The most frequent sequence of symptoms was: anorexia, diarrhea, vomiting (projectile in Cases 14 and 15), tympanites, pallor, anxious facies. Cyanosis was the first marked symptom in Cases 4, 9 and 12. In Case 4 convulsions occurred on the sixth day, two days before a diagnosis was made. In the order of their frequency, the signs and symptoms were: anorexia, diarrhea, weight-loss, tympanites, pallor, anxious facies, vomiting, constipation, cyanosis, convulsions.

Diagnosis was based on the repeated presence of numerous polymorphonuclear leukocytes in the low-power field of fresh, uncentrifugalized urine. It was invariably strongly acid, and often contained variable

* From the Pediatric Department of the Evanston Hospital.
* Read before the Section on Diseases of Children at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Hüttenbrenner: Lehrbuch der Kinderheilkunde, 1876, p. 453.
2. Escherich, T.: Ver. d. Aerzte in Steiermark **5**, 1894.
3. Finkelstein, H.: Jahrb. f. Kinderh. **43**, 1896.
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5. Kovalosky, P., and Moro, E.: Ueber zwei Fälle Kolisepticaemia bei Neugeborenen, Klin.-therap. Wchnschr. **50**, 1901.
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8. Finkelstein, H.: Lehrbuch. d. Säuglingskrankheiten, Ed. 3, Berlin, Springer, 1924, p. 779.
9. Helmholz, H. F.: Pyelitis in the New-Born, M. Clin. N. Am. **1**: 1451 (March) 1918; Pyelonephritis, in Abt's Pediatrics **4**: 923, 1924. Helmholz, H. F., and Millikin, Frances: The Kidney: A Filter for Bacteria, Am. J. Dis. Child. **29**: 497 (April) 1925.

amounts of albumin, epithelial cells, erythrocytes and casts. *B. coli* was found in fourteen cases; *B. enteritidis* in one case. Only female infants were catheterized; specimens from male infants were usually obtained in sterile, Spicer urinals after the meatus and glans had been cleansed with 5 per cent. compound solution of cresol. Pus and traces of albumin may continue for weeks after symptoms subside and after weight increase is well established. Recovery was usually complete within six weeks.

As most of these infants suffered from gastro-intestinal derangement, the amount of breast milk or other food was carefully supervised. Constant diuresis and alkalization of the urine (night and day) usually proved effective. The freshly passed urine was tested as a routine several times daily with litmus paper. As most of the patients were on the breast, from 1 to 4 ounces (30 to 120 c.c.) of water with sodium citrate and bicarbonate, from 5 to 10 grains (0.3 to 0.65 gm.) was given between nursings. Saccharin was occasionally added. When anorexia was extreme, fluid and food were given by dropper or gavage. During the period of severe vomiting, fluids were given frequently by rectum. In three cases (Cases 4, 12 and 15), daily hypodermoclyses were necessary for a week or more. In the artificially fed, part of the alkali was given in the food. Treatment was continued for several weeks after the urine was free from pus, albumin and bacilli.

The mode of infection, i. e., the route taken by the invading *B. coli* that cause pyelitis in infants, is still a question. There are three accepted, probable modes of infection: (1) the ascending; (2) the lymphatic of Franke,[10] and (3) the hematogenous routes. In the ascending route the organisms are supposed to pass the urethra, enter the bladder and pass up the ureter into the pelvis of the kidney. The frequency of pyelitis in girl babies of the diaper age led to this conception. It has not been substantiated by any conclusive experimental work. According to the so-called transparietal route, the lymphatics between the ascending colon and the right kidney are the supposed avenues of entrance. The permeability of the intestinal wall in the early days of life makes the hematogenous route the most probable. Intestinal *B. coli* presumably pass by way of the blood stream to the glomeruli, down the tubules to the pelvis. The sterility of normal blood is the result of phagocytosis by the blood elements, and the endothelial cells of liver, lungs, spleen and kidney. The recent experimental work of Helmholz shows that neither avirulent nor virulent *B. coli* can pass through the kidney filter in less than five hours. Only when the physiologic barriers of blood and kidney become broken down can pyelitis result. The virulence and dose of the organisms, the general and local resistance of the host, anomalies of the urinary tract which cause stasis (ureteral kink, stenosis of the ureter), and the shallowness of the lumbar recess are important factors in the etiology of pyelitis in children.

A chronological analysis of our fifteen cases shows that they fall into three periods. The first three cases (1, 7 and 9), reported by Dr. Helmholz, were diagnosed within a period of six weeks in the early winter of 1917; the next four cases (4, 5, 8 and 10) were discovered in the winter of 1922; the last eight cases were observed in January and February, 1925. No case of neonatal pyelitis was seen during the intervals, despite many urinalyses. As most of our patients presented symptoms referable to the gastro-intestinal tract, the question arises whether an enteral irritation produced a change in bacterial virulence or whether a virulent colon organism had gained entrance and produced an increased permeability of the intestinal wall. The absence of neonatal pyelitis in numerous infants examined during the intervals, and the occurrence of fifteen cases in three short periods lead one to conclude that the *B. coli* that produced these cases of neonatal pyelitis were bacteria of increased virulence and not the ordinary saprophytic forms.

10. Franke, C.: Aetiologisches zur Coliinfektion der Harnwege, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **22**: 623, 1911.

CONCLUSIONS

1. Neonatal pyelitis is probably a periodic disease which occurs more frequently in male infants.

2. Gastro-intestinal symptoms, especially vomiting, anorexia, diarrhea and tympanites, predominate.

3. Microscopic examination and culture of the urine of fifteen nonthriving new-born infants with gastro-intestinal symptoms or cyanosis revealed pus and *B. coli* in fourteen instances.

4. The disease, when free from complications, usually responded within six weeks to diuresis and continued alkalization of the urine.

5. The infection is probably due to pathogenic, enteral *B. coli* which localize by way of the blood stream.

ABSTRACT OF DISCUSSION

DR. L. T. ROYSTER, University, Va.: There are two conditions on which we have been accustomed to look as very rare in the new-born: pyelitis and otitis. In a number of instances I have seen the two conditions in the same child. We know the frequency with which pyelitis complicates other infections in infancy and childhood; this is true in infections of the upper respiratory tract and of the intestinal tract. In young children, infections of the intestinal tract may complicate nasopharyngeal infections. Pyelitis is a frequent complication. I wonder how many of these infections are primarily colonic in origin. In most cases of pyelitis that have existed for any length of time, colon bacilli can be found. I should like to ask Dr. Sauer how many times he has seen pyelitis of the new-born in the early stages; in other words, whether he has seen these cases early enough to know whether they were colon infections primarily or secondarily. You cannot rule out pyelitis by not finding pus in the urine in any age. Sometimes, at the time of the fever there are only a few scattered cells; but at the time the temperature falls to normal there is an outpouring of pus and frequently a diagnosis cannot be made until the temperature has reached normal. As to treatment, I would recommend flushing out the urinary tract with as much water as the infant can be induced to take, and I do not hesitate to use the stomach tube. I have not had the courage, in very young infants, to use as large doses of hexamethylenamin as recommended by Dr. Helmholz. I have not seen any infection follow the use of small doses. I doubt that alkalization is of any benefit, except so far as the alkali produces diuresis. I believe water has more effect than anything else.

DR. MYER SOLIS-COHEN, Philadelphia: I was interested to hear that these organisms were more virulent than *B. coli*. Ordinarily, *B. coli* is nonvirulent for man. If the organisms are planted in the fresh, whole, coagulable blood of a healthy individual they will be destroyed. Heist, Solomon Solis-Cohen and I tested out *B. coli*, isolated from feces, in the whole blood of fifteen normal men. It disappeared in the blood of all. In pyelitis due to *B. coli*, the colon bacillus obtained from the patient's urine grows in the whole blood of the affected person, and it also frequently grows in the

whole blood of a normal person. As fresh whole blood usually has good bactericidal power against *B. coli*, it is probable that the strain which produces infection is of increased virulence, because, if it were merely a case of lowered resistance in the patient, the bacilli would not grow in the whole blood of the normal control. I should like to know whether the mother had lowered resistance to *B. coli* from any previous infection. *B. coli* in cultures from the urine in pyelitis is not necessarily pathogenic for the patient. Sometimes several types of organisms are present on ordinary culture, some pathogenic for the patient and some nonpathogenic. Sometimes the organism pathogenic for the patient is in comparatively small numbers. When, in such a case, comparatively large numbers of *B. coli* are present that are nonpathogenic for the patient, they may on ordinary culture choke off and inhibit the growth of the other organism which is pathogenic for the patient and probably the etiologic factor. But if one places a drop of the urine in a sterile test tube and then puts in the tube from 3 to 5 c.c. of the patient's fresh, whole, coagulable blood and incubates for twenty-four hours, the organisms that are nonpathogenic to the patient will be destroyed or have their growth inhibited, while the infecting organism that is pathogenic for the patient will grow up. This method I have termed the pathogen-selective culture. In the cases mentioned in which there was infection from forceps or from otitis media, the presence of *B. coli* in the urine did not prove that *B. coli* was the cause of the infection.

DR. HARRY LOEWENBURG, Philadelphia: The best method of treating these cases is by alkalization. Pyelitis is a disease in which medicine is more important than food. I saw a child that had been ill for three or four weeks with temperature elevation. It was proved to be pyelitis. The disease was controlled by large doses of sodium citrate. I think Dr. Sauer administered alkali night and day. No case can be adequately treated unless the nurse is impressed with the importance of the constant and prolonged administration of alkali until all symptoms have subsided.

DR. L. W. SAUER, Evanston, Ill.: I am glad the last speaker emphasized the importance of a constant alkalization of the urine in these cases. Early diagnosis is another most important feature. When new-born infants show these symptoms, urine analysis should be done at once. Constant alkalization of the urine should be carried out, waking the child at night to give constant treatment for the whole twenty-four hours. With plenty of water, this gives good results. Food must be carefully supervised. The alkali has also a diuretic action, which is very beneficial. None of the mothers had pyelitis or other noteworthy infections. I am undecided, whether these were primary *B. coli* infections. The first specimens of urine showed pus and albumin. Perhaps the intestinal symptoms were due to pathogenic *B. coli* in the intestinal canal. I believe there is a difference between virulent and avirulent types of *B. coli*. In our series I think we were dealing with the virulent form.

The Spinal Fluid in Cranial Injuries.—The value of lumbar puncture during the observation of cranial injuries is rendered obvious by Payr's remark, who compares it with a barometer reading, as it affords information on the prevailing variations and supplies a warning sign in a commencing infection. Tilmann also attributes the greatest importance to lumbar puncture in injuries to the skull. He says: Every increase of albumin indicates the presence of inflammatory or regenerative changes going on within; stronger degrees indicate cerebral abscess. An increased pressure that falls little or not at all speaks for an intracerebral lesion, and with simultaneous high albuminous content, for cerebral abscess; with low albuminous content for an inflammatory cyst, and very small increase for a retention cyst. If the increased pressure falls rapidly, then a meningitis serosa is usually present. Clairmont considers that in cases which show no increase of pressure, but only a very small amount of bloody spinal fluid, or an outflow of pure blood, that the indication is given for the performance of trepanation of the skull, which stimulates the disturbed production of cerebrospinal fluid.—Pappenheim, Martin: Lumbar Puncture, William Wood & Co., 1925.

TRYPARSAMIDE TREATMENT OF NEUROSYPHILIS

SECOND REPORT *

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AND
HENRY R. VIETS, M.D.
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Last year at the meeting of this section, we [1] reported on our experience with tryparsamide in the treatment of various types of neurosyphilis, and drew conclusions regarding its efficacy as compared with other forms of treatment. We wish at the present time to modify those conclusions on the basis of another year's experience. At that time we reported that tryparsamide had a definite effect on the clinical course of neurosyphilis and especially modified the serologic findings. In the majority of instances the pleocytosis of the spinal fluid was reduced to normal after from six to twelve injections. This experience has been borne out in our subsequent work. A year ago, we reported also that the spinal fluid Wassermann reaction and the colloidal gold curve had been but relatively little affected.

During the last year, the serologic results of treatment with tryparsamide have been quite striking and very gratifying, particularly in the early cases of meningovascular neurosyphilis and some cases of tabes. For example, in one case of a young woman with meningovascular neurosyphilis, having convulsions and a paretic type of spinal fluid, ten injections of tryparsamide were sufficient to produce entirely negative serologic findings. Again, in a man of 40, with tabes and serologic findings typical of this condition, the spinal fluid became entirely negative except for a weak colloidal gold curve, after thirteen injections of tryparsamide. While these results are extremely striking, they are by no means the rule, and are not to be expected in every case.

With the long continued use of tryparsamide, however, more constant good results may be expected. For example, a patient with tabes, after having received fifty-nine injections of arsphenamin and fourteen spinal drainages, had a reduction of his colloidal gold curve from a paretic curve to negative, and the cell count dropped from 119 to 1. The spinal fluid Wassermann reaction, however, remained positive in 0.2 c.c. After seventy-seven injections of tryparsamide, the Wassermann reaction was slightly positive in 0.6 c.c. and negative in 0.4 c.c., and the other tests remained normal. In this instance, the Wassermann reaction was not changed until more than fifty injections of tryparsamide had been given.

Similar results were obtained in cases of paresis. Occasionally, but very rarely, good serologic results would be obtained with a relatively small amount of treatment. In most cases, however, a large amount of treatment was necessary before serologic improvement took place. Thus, one paretic patient, with a spinal fluid Wassermann reaction positive with 0.05 c.c., 25

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* From the Boston Psychopathic Hospital and the Massachusetts General Hospital.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

* This study was aided by a grant of funds from the Division of Mental Hygiene, Massachusetts Department of Mental Diseases. The tryparsamide was made available through the courtesy of the Rockefeller Institute.

1. Solomon, H. C., and Viets, H. R.: A Comparison of Tryparsamide and Other Drugs in the Treatment of Neurosyphilis, J. A. M. A. 83: 891 (Sept. 20) 1924.

cells per cubic millimeter, a large amount of globulin, and a colloidal gold curve of 5555532000, showed little improvement in the serologic findings after thirty, forty and fifty injections of tryparsamide, but after seventy-five injections, the spinal fluid Wassermann reaction became negative with 0.8 c.c., the cells were reduced to 7 per cubic millimeter, the globulin to a faint trace, and the colloidal gold curve to 2333210000. It is our opinion that in many cases in which the serologic improvement has not taken place under tryparsamide treatment, treatment has not been continued long enough. At the present moment we are not in a position to state how much treatment is really necessary to bring the serologic findings to a point at which no more improvement can be expected by a continuation of treatment.

We have shown that it is often necessary to give more than fifty injections before a good result can be obtained. For example, a paretic patient who went through a clinical remission after a few injections of arsphenamin, but who showed no serologic improvement after fifty injections of arsphenamin, was given sixty-five tryparsamide injections. The only changes were a diminution in the Wassermann reaction from being positive in 0.5 c.c. to positive in 0.1 c.c., a change too slight to have any real significance; a reduction in the cell count to normal, and a very slight reduction in the strength of the colloidal gold curve. These changes, with the possible exception of the cell count, might very easily be discounted because of their very slight amount. Yet, we are in no position to state that another thirty to fifty injections of tryparsamide would not give us a very satisfactory result. It has been our experience, then, that in some cases seventy-five or more injections are necessary before serologic improvement takes place.

Relatively similar statements may be made regarding the effects of tryparsamide on the clinical status of patients. Very frequently we have seen more prompt and rapid improvement in the clinical symptoms with tryparsamide than with other forms of treatment. A tabetic patient, aged 45, who had had fifty injections of arsphenamin over a period of six years, showed practically no clinical improvement, nor was there any marked change in the serologic findings. After sixteen injections of tryparsamide, however, although the serologic findings were not markedly changed, the patient improved clinically very rapidly, making more progress in six months than he had made in the previous six years.

Other patients have also improved clinically, and often very rapidly, in spite of the fact that there has not been a marked serologic change as a result of the tryparsamide treatment. In a patient, aged 40, with cerebral syphilis, in whom the serologic findings were strongly positive, rapid clinical improvement took place after only six treatments of tryparsamide. This improvement continued during thirty more injections of tryparsamide, in spite of the fact that serologic changes, except for the decrease in cell count and amount of protein in the spinal fluid, were unchanged. It is possible in this case also that we are dealing with a patient who will ultimately show good serologic improvement under continued tryparsamide treatment. Another patient, who had more than forty injections of tryparsamide, also showed very slight changes serologically, but the clinical improvement was rapid and very marked.

It is always difficult to draw definite conclusions about the clinical effect of drug treatment in cases of neurosyphilis, and there is likely to be, as we have mentioned in our previous communication, a difference in opinion of two observers on the same group of cases. There does seem, however, to be reason to state that a majority of patients who receive tryparsamide show an immediate sense of improvement. Despite this, it is not always true that the improvement in the tabetic patient continues, and our experience is a little at variance, for at least the conclusion drawn by us differs somewhat. In the case of one of us, there is a firm impression that the old, broken-down tabetic patients really respond much more satisfactorily to tryparsamide than to any other drug treatment, with the exception of those with gastric crises, in whom the outlook is not so good. The other feels that in a number of cases the clinical results have not been as satisfactory as the serologic, and is rather inclined to believe that more permanent clinical results are obtained by intraspinal treatment than by tryparsamide. We would both agree, however, that there is less danger in the treatment of the old degenerative type of tabetic patient with tryparsamide than with intraspinal methods.

Paretic patients, however, who do not go to pieces in the first few weeks of treatment, have made very good clinical improvement. A majority have developed satisfactory remissions for over a period of a year or more. A number of patients, in whom clinical remissions occurred under arsphenamin, have been changed to tryparsamide and remained in their remissions.

As to the question of the relative efficiency of tryparsamide and other forms of treatment, we feel a considerable amount of hesitancy in drawing any conclusions. From what has been said above, however, it is obvious that good serologic results have been obtained in the cases of paresis. We have had satisfactory serologic results also in patients who have had other treatment previously without success. For example, a tabetic patient, who in 1919 had a spinal fluid Wassermann reaction positive with 0.05 c.c., 134 cells per cubic millimeter, globulin and total protein increased, and a colloidal gold curve of 5443210000, received 116 injections of arsphenamin, thirty-six spinal drainages, twelve intraspinal and four intracisternal injections of serum, and mercury over a period of nearly four years. He had at the end of that time a spinal fluid Wassermann reaction positive in 0.1 c.c., 38 cells per cubic millimeter, globulin and albumin increased, and a negative colloidal gold curve. After a relatively few injections of tryparsamide, there was a diminution in the strength of the Wassermann reaction; and after eighteen months of treatment with sixty-nine injections, the spinal fluid Wassermann reaction was negative with 1 c.c., there were no cells, there was a very slight amount of globulin, the total protein was normal, and the colloidal gold curve was negative. Similar but less striking results, evidently showing the superiority of tryparsamide over arsphenamin in its effect on the serologic findings in the spinal fluid, have been seen; yet for obvious reasons we cannot at the present time speak too dogmatically. Mention may be made also of the simplicity of tryparsamide therapy for both the operator and the patient, as compared with long continued intrathecal injections.

Our feeling again is a little different than it was a year ago regarding the untoward results of tryparsamide. The most serious is amblyopia. In the course of the past year, we have had but one case of amblyopia, and that in a patient with optic neuritis who perhaps should not have been subjected to this drug. The

question of amblyopia, while always to be considered, should not prevent the use of tryparsamide when it is otherwise indicated. Other symptoms of a somewhat unpleasant nature have occurred, such as ringing in the ears, short periods of mild confusion, and very rarely a slight increase in the mental symptoms in the cases of paresis. In no case has this been of sufficient moment to lead either to the cessation of the use of the drug or to any permanent injury to the patient. Occasionally, a slight amount of nausea or even vomiting occurred after injections, but less frequently than in patients receiving arsphenamin. Nitritoid reactions have not been observed, nor have we seen any instances of exfoliative dermatitis. We have seen two or three instances of jaundice in patients receiving tryparsamide, which may or may not have been caused by the drug.

In many of our cases, we have utilized mercury and arsphenamin in conjunction with tryparsamide.

SUMMARY

1. Serologic improvement has been marked in the majority of cases of all types of neurosyphilis treated with tryparsamide. In addition to the decrease in pleocytosis in the spinal fluid reported last year, we have found reductions in the Wassermann reaction, colloidal gold curve, and globulin.

2. Occasionally, the spinal fluid has become normal after a few injections of tryparsamide; but in the majority of cases of parenchymatous neurosyphilis, fifty or more injections have been required to produce serologic improvement.

3. Some cases, having received long courses of treatment with arsphenamin and with other methods without marked serologic improvement, have responded to tryparsamide.

4. In general, in patients with neurosyphilis, more rapid and more marked clinical improvement has been observed under treatment with tryparsamide than with the older methods. Cases of early paresis have usually shown remissions, and have continued to hold their clinical improvement over the two-year period during which we have been using tryparsamide. Clinical results have not been as good with the older cases of tabes with marked signs of degeneration of the spinal cord.

5. Very few untoward symptoms, and none of marked importance, have occurred in the last year.

6. It has been our experience that it is often necessary to give tryparsamide over a period of a year or longer, before either good serologic or clinical results can be expected.

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ABSTRACT OF DISCUSSION

DR. JAMES B. AYER, Boston: I have been associated with Dr. Viets in the treatment of perhaps one third of the cases reported. Naturally, my conclusions about the drug are similar to his. My personal feeling is that meningovascular syphilis and the tabetic group, for the most part, do as well under the old intravenous arsphenamin treatment as on tryparsamide. Exceptionally a case arises that is resistant to arsphenamin and does yield to tryparsamide. Therefore, this drug can be used as an adjunct in such cases. When it comes to the paretic group, we all know how we accomplish something in the early stages with arsphenamin. When it comes to preventing a relapse, we are powerless to do so, with arsphenamin, serum therapy, spinal drainage or mercury. Tryparsamide seems thus far to have been much more efficient in this respect. We were afraid of eye symptoms, as we properly should have been, but the present report suggests that the likelihood of optic atrophy is small and apparently not increasing as time goes on. The secret of successful treatment with tryparsamide, as with arsphenamin, appears to be the use of enough of it. It is remarkable to see the successful use of tryparsamide in some of Dr. Solomon's cases in which weekly injections have been employed over nearly two years. In closing I wish to say a word of thanks to the Rockefeller Institute. For two years it has supplied us and many a clinic with all of the drug that could be used, absolutely free, with "no strings tied to it." It seems to me that it has carried on the preliminary trial of tryparsamide in a way that is greatly to be commended, and I believe that appreciation of its attitude should be made known at the present time.

DR. JULIUS GRINKER, Chicago: I have used tryparsamide since the drug was released, and while the number of cases in which I have used it is not large enough to give statistics, my impression is that it is no better than the Swift-Ellis treatment. I have treated a number of patients with paresis and tabes energetically and for long periods with the Swift-Ellis treatment; those patients are still under my observation. They have long remissions. Some of them are working; others, though having these remissions clinically, still show a strongly positive Wassermann reaction. I believe that most cases of paresis continue to show such a reaction, though the cell count is reduced, and the colloidal gold reaction is changed from a paretic to a syphilitic curve in some cases. The case that I have had longest under observation and was treated by the Swift-Ellis method is now of five years' duration. The Swift-Ellis treatment must not be laid on the shelf just because we have tryparsamide. I like the conservative manner and tone in which the authors presented their experience with tryparsamide. They do not repeat the statement made by the optimists, that three courses of treatment, consisting of eight injections each, will cause a permanent disappearance of the positive Wassermann reaction and produce what is tantamount to a cure of paresis. I have thus far had no cases of optic atrophy, though I was obliged to discontinue the use of tryparsamide because of the blurring of vision which it produced in two of my cases. Last summer, in Wagner's clinic, I was shown a large number of paretic patients who had received the malaria treatment; I was surprised at the great improvement and almost complete recovery of some of them. That treatment offers great prospects for the future and far excels any other method of treatment.

DR. ALFRED GORDON, Philadelphia: Several years ago I undertook the systematic intraspinal treatment of neurosyphilis, including paresis, tabes, all kinds of hemiplegias, headaches and epilepsy with a syphilitic history. That systematic treatment was carried out for many months. In a very small number of the cases (there were more than 200) the clinical improvement ran parallel with the serologic improvement. Hopes were entertained by the patients and others as to the ultimate outcome, because serologic findings had proved to be exceedingly favorable and still the clinical manifestations were different, and vice versa. I have obtained great improvement in the clinical aspect of the cases, but very little improvement from the serologic point of view. I should like to ask Dr. Viets whether he observed anything of that sort, or otherwise, in his treatment with tryparsamide. I may also mention, as Dr. Ayer brought out, that in neurosyphilis it is not the injection alone that counts; it is the general management of the cases. One cannot treat all the paretic patients in a systematic way and rely exclusively on the drug treatment; there are so many elements that enter into the individuality of the patient, or into the individuality of the treatment. I have obtained equally good, or bad, results with the intravenous injection, and more so with the intramuscular injections. I have treated with intramuscular injections cases of paresis, tabes, and spinal syphilis for a long time without any other treatment, and the results were equal to those I received formerly by the other methods.

DR. HENRY R. VIETS, Boston: I do not want to create the impression that we have given up the older methods of treatment. We are still interested in the Swift-Ellis treatment, in the intravenous treatment, and somewhat interested, or begin-

ning to be interested, in the malarial treatment; but for the purposes of this study we felt, two years ago, that we had better take a certain number of cases, about a hundred, and carry them through with tryparsamide to see what our results would be—and that we have done. Some of these were cases that had not responded well to other forms of treatment, and we find that they respond better, on the whole, to tryparsamide. Also, it is to be noted that they respond more quickly to tryparsamide. We have had some excellent results from the intraspinal treatment over long periods. We feel that tryparsamide, though, is much easier to give, for both the operator and the patient, and that the results, on the whole, have been more striking and quicker than with the other method. Dr. Grinker spoke of the positive Wassermann test remaining in the spinal fluid. It has been our observation in the last year (not so one year ago) that we have had more negative spinal fluid Wassermann reactions with tryparsamide than with other forms of treatment. In regard to the variation between clinical and serologic improvement, most of the patients under tryparsamide respond quickly serologically. That is not always the case clinically, but, on the whole, they have responded more quickly both clinically and from the serologic point of view than with other forms of treatment.

DR. GEORGE W. RAIZISS, Philadelphia: Were there any cases of optic atrophy in your series under the prolonged tryparsamide treatment? Did any reactions take place immediately or shortly after the administration of the drug?

DR. HENRY R. VIETS, Boston: I mentioned only one case of amblyopia in the last year, and that in a patient who already had optic neuritis. We have had no others. We have had a few immediate reactions, very slight in nature, such as some nausea and vomiting, without any permanent bad effects.

THE ALLEGED SYNERGISM OF MAGNESIUM SULPHATE AND MORPHIN *

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During the last few years, considerable clinical literature has appeared on the subject of the synergism of magnesium sulphate and morphin. A complete review of these papers is not necessary here, since practically all the writers interpret their findings on the basis of (1) a misunderstanding, and (2) a false conception.

THE MISUNDERSTANDING

This misunderstanding lies in the fact that sincere but entirely inadequate animal and human experimental work has been accepted as proving that such a synergism exists, whereas careful and thoroughly scientific studies have shown that this simply is not true at all. The belief in this synergism originated with Gwathmey who, in 1921, proposed the conversion of colonic anesthesia, as previously developed by him, into synergistic analgesia by making use of the synergistic effects of magnesium sulphate and morphin when the two drugs are injected hypodermically prior to the introduction of the ether-oil mixture into the colon. He[1] states that this combination was first suggested to him by Pellini, and from the work they performed together, Gwathmey offers the following as his sole experimental evidence:

> A sufficient number of animal experiments was conducted to prove that one-eighth grain of morphin in 2 c.c. of a 25 per cent. solution of chemically pure and sterilized magnesium sulphate, given hypodermically and repeated twice at half-hour intervals, analgized an animal sufficiently for the full force of an artery clamp to be placed anywhere on the skin without being noticed by the subject. The controlled animal, with the same dosage of morphin, given in plain water hypodermically, was not analgized to anything like this degree.

The size of the animals used is not mentioned, nor is the number of experiments performed stated. Also, to accept the mere statement that the dogs given morphin alone were "not analgized to anything like this degree" as one having any very real scientific value is impossible, especially as it is well known that dogs become markedly insensitive to pinching on even very small doses of morphin, though they will at the same time resist cutting and also show signs of heightened activity of the more superficial reflexes, such as to light and sound.

As to the operation of this synergism in man, we have the following from the same paper: "At the Presbyterian Hospital it has been definitely determined that the addition of a small amount of magnesium sulphate to the usual hypodermic of morphin increases the value of the hypodermic from 50 to 100 per cent." Again, not a word regarding the experimental conditions; just the statement that "it has been definitely determined."

Certainly this is insufficient evidence on which to base a belief in the alleged synergism. Furthermore, it was definitely shown by Issekutz in 1915 that such a synergism does not occur. Although Issekutz performed his experiments six years before Gwathmey made his announcement, Gwathmey does not seem to have been familiar with the work, for in 1921 he[1] writes: "A search of the literature does not give a single reference to the use of magnesium sulphate with morphin for analgesic purposes." Issekutz[2] studied the effects of magnesium sulphate on rabbits in the hope of finding some way of increasing its safe range of anesthesia in the treatment of tetanus. He combined it with other drugs, and presents thoroughly convincing experimental evidence of the following: When magnesium sulphate is combined with scopolamin there is a true potentiation of the action; when it is combined with chloral hydrate, paraldehyd, hedonal, urethane or phenobarbital (luminal), the sum total effect is only addition and there can be no question of synergism; and when it is combined with morphin, not only does potentiation not take place, but the combination is more toxic than either the magnesium sulphate or the morphin alone. Nor is clinical evidence against the belief wanting. Those who foster the idea of this synergism are fond of quoting the work of Weston and Howard,[3] who used the magnesium sulphate quite effectively as a sedative in the insane in states of more or less excitement and insomnia; but no one has as yet quoted from that part of their paper in which they state that "in cases not quieted by 6 to 10 c.c. of 50 per cent. magnesium sulphate solution, morphin was also of no value except in heroic doses, and when the magnesium sulphate alone failed to give the relief it was of no effect when used in combination with one-fourth grain of morphin."

THE FALSE CONCEPTION

That there is among present contributors to this subject, a failure to grasp the nature of the obligation which devolves on one who would study synergism—namely: to select such phenomena for modification by drug action

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1. Gwathmey, J. T.: Synergistic Colonic Analgesia, J. A. M. A. **76**: 222 (Jan.) 1921.

2. Issekutz, B.: Therap. Monatsh. **29**: 379, 1915.

3. Weston, P. G., and Howard, M. Q.: Magnesium Sulphate as a Sedative, Am. J. M. Sc. **165**: 431 (March) 1923.

as will easily lend themselves to sharply drawn comparisons; and to distinguish clearly between addition and true synergism; and, above all, not to describe as synergism the overwhelming effect seen when abnormally large doses of either drug are given, may be adduced, I think, from the following facts:

1. In nearly all cases, the ability of the magnesium sulphate-morphin combination to lessen the pains of childbirth is selected for study. That any conclusions drawn from such observations must always be extremely inaccurate, is surely apparent to any clinician with a knowledge of the great variability of labor pains entirely independently of the exhibition of any drugs whatever. Furthermore, if we accept such studies at all, then not only must they comprise a comparison of labor treated with the combination with labor untreated, but also labor treated with the combination must be carefully contrasted with labor treated with either one of the drugs alone. This is not done.

For instance, Adams,[4] in one of the recent contributions to the subject, studies the effect of the combined use of the two substances in sixty cases. In 21.5 per cent. of the cases the dose (2 c.c. of 25 per cent. magnesium sulphate plus one-sixth grain of morphin) had to be repeated. Results of the entire sixty cases were: excellent, 25 per cent.; good, 25 per cent.; fair, 26.6 per cent.; poor, 16.6 per cent.; none, 6.6 per cent. As controls, 299 cases in which medication was not given were used, although the amount of pain suffered by the patients was not tabulated as above at all. No patients were treated with either drug alone, so that a comparison of morphin with morphin-magnesium sulphate was not made in this paper. This observer is even skeptical himself of his results, for anent the doubtful advisability of using the amount of pain complained of at labor as a test for the efficacy of the analgesic properties of a drug, he writes: "Under conditions apparently the same as regards the intensity of the pains and what they accomplish, one patient will suffer extremely, while another with a different nervous organization will to all appearances suffer very little."

2. In nearly all cases reported in the literature, not only is the magnesium sulphate-morphin combination used solely, but the amounts of morphin given in this combination are so large that the conclusions drawn as to the synergism are thus rendered of the most doubtful value, since we have no experience of the effect of such heroic doses of morphin if given alone. And, again, in the few reports in which morphin is given alone, the drug is not given in the same large amounts in which it appears when the combination with magnesium sulphate is employed.

The trend of these investigations will be sufficiently shown by reviewing here one paper that is being quoted of late: Glass and Wallace,[5] reporting on the use of magnesium sulphate and morphin synergistically as preoperative treatment for postoperative comfort, describe their technic as "hypodermoclysis of a 4 per cent. chemically pure and sterile solution of magnesium sulphate, 200 c.c. given one and one-half hours before operation." In their conclusions they say: "The synergistic effect of magnesium sulphate with the preoperative morphin tends to prolong the sedative action to such an extent that rarely is it necessary to give morphin postoperatively." If a comparison is made of their cases in which morphin alone was used with those in which morphin plus magnesium sulphate was employed, one will not be surprised that the sedation was prolonged in the latter class.

Omitting the one case in each series in which pantopon was used, which is of no importance here, their cases may be arranged according to dosage as in the accompanying table.

Arrangement of Cases According to Dosage

	Number of Cases	Morphin in Grains					
		1/6	1/5	1/4	3/8	1/2	1
Morphin alone	12	2	..	10	..	..	.
Morphin plus magnesium sulphate	14	..	1	2	7	2	2

If we accept the average therapeutic dose (the one on which our experience of the drug is based) of morphin as being from one-sixth to one-fourth grain, it will then be seen that in the first series all patients received just that dose, whereas in the second series only three received that amount, the eleven other patients being given doses that ranged from three-eighths grain to 1 grain. This was in addition to 200 c.c. of 4 per cent. magnesium sulphate solution and the two or three hypodermic injections of 1.5 c.c. of 25 per cent. magnesium sulphate in which the morphin is given!

I do not think that one can legitimately speak of synergism at all when the overwhelming nature of the dosage employed carries the resultant phenomena entirely outside the range of ordinary experience with average doses of the drugs.

ANIMAL EXPERIMENTS

In studying this alleged synergism, I have worked with dogs exclusively for two reasons: first, because Gwathmey's original statements were based on observations made on these animals; and, second, because he asserted that by employing these drugs synergistically he could reduce the amount of ether-oil used in the ether-oil colonic method of anesthesia by one half, and I had early observed that I could cause this anesthesia to appear in dogs under conditions entirely similar to those in man. To date, fifty-one animals have been used and 113 experiments performed.

These experiments, a preliminary report of which has been made elsewhere,[6] have extended throughout the last two years and have had a twofold object: (1) to determine exactly the conditions of successful colonic anesthesia in the dog when morphin alone was used as the preliminary medication; and (2) to observe to what extent, if any, these conditions could be modified by the use of magnesium sulphate plus morphin as the preliminary medication.

The studies group themselves under five heads, to be denominated here Series A, B, C, D and E.

SERIES A

Object: To determine the amount of ether-oil that is always effective in inducing satisfactory anesthesia.

Method: Dogs, ranging in weight from 5 to 23.5 kg., were injected subcutaneously in the side with an aqueous solution of 0.01 gm. of morphin sulphate per kilogram of body weight. After one hour they were tied to a dog-board on their left side; a No. 29 soft rubber catheter was lubricated and introduced slowly into the rectum and colon for an average distance of 7 inches, and the ether-oil mixture was allowed to flow in from four to six minutes. A mixture of 75 per cent. ether

4. Adams, T. W.: Morphin and Magnesium Sulphate as an Obstetrical Analgesic, Am. J. Obst. & Gynec. **8**: 266 (Sept.) 1924.

5. Glass, S. J., and Wallace, H. S.: Preoperative Treatment for Postoperative Comfort, J. A. M. A. **78**: 24 (Jan. 7) 1922.

6. Beckman, Harry: On the Alleged Synergism of Magnesium Sulphate, J. Lab. & Clin. Med. **10**: 189 (Dec.) 1924.

and 25 per cent. olive oil was used in all cases, with the following results:

1. One ounce of the mixture per 40 pounds (18 kg.) of dog was ineffective in inducing anesthesia.

2. One ounce of the mixture per 30 pounds (13.6 kg.) of dog was little, if any, more effective.

3. One ounce of the mixture per 20 pounds (9 kg.) of dog was in all cases effective in inducing and maintaining surgical anesthesia.

SERIES B

Object: To determine the amount of morphin sulphate that is necessary to inject in order to obtain satisfactory anesthesia when the ether-oil is introduced.

Method: It having been determined in Series A that 1 ounce of the ether-oil mixture per 20 pounds (9 kg.) was always effective in inducing anesthesia when the preliminary dose of morphin had been 0.01 gm. per kilogram of body weight, this dose was therefore fractionated and dogs were injected with preliminary doses of morphin ranging from 0.01 gm. as the highest to 0.001 gm. as the lowest, with the following results:

1. On the lower doses there is usually a brief excitement stage which lasts for a short time after the ether-oil is introduced. There is no approach to anesthesia on these lower doses.

2. As the doses are increased, the excitement stage fails to appear and anesthesia begins to be approached. Beyond 0.0075 gm. per kilogram, light anesthesia is frequent but sometimes fails to occur.

3. Whenever 0.01 gm. of morphin sulphate per kilogram of body weight is injected preliminary to the introduction of the ether-oil, anesthesia invariably results.

SERIES C

Object: to determine the amount of time that should elapse between the injection of the morphin and the introduction of the ether-oil in order to obtain the most satisfactory anesthesia.

Method: Dogs were injected with the effective dose of morphin and then the effective dose of ether-oil was introduced at intervals of time ranging between fifteen minutes and one hour and fifteen minutes; with the following results:

1. At fifteen minutes, attempts to introduce the tube to have it retained nearly always fail because the peristaltic increase induced by the morphin is still very marked.

2. At thirty minutes, it is usually possible to obtain anesthesia, which, however, is oftentimes much slower in coming on than it would have been had the interval been longer. Sometimes, also, peristalsis is still sufficiently active to cause the animal to eject a large part of the mixture and thus cause the attempt to fail.

3. At one hour, anesthesia is always obtained.

COMMENT ON SERIES A, B AND C

Morphin sulphate, 0.01 gm. per kilogram of body weight, followed in one hour by 1 ounce of the ether-oil mixture, is always effective in inducing and maintaining surgical anesthesia. This anesthesia is completely established in an average time of thirteen minutes and lasts from one to one and a quarter hours. The usual test for complete anesthesia is the ability to make an abdominal incision through all the layers of the skin in a dog having complete muscular relaxation. However, in order to be doubly sure, in a number of cases (selected at random) the abdomen has been completely laid open, and rough manipulative procedures have been performed on the intestine. Muscular relaxation is always complete, though the partial retention of reflexes is always noted; in several cases, dogs have responded to a whistle by partially raising the head while major surgery was being done on the abdomen.

There is a quite remarkable absence of salivation and of any movements of the body in the second (excitement) stage. Fifty-eight experiments were performed. An abbreviated protocol is here given:

Dog 17.—Dec. 9, 1924. Male; 12.5 kg.; estimated age, 2 years. Condition good. First anesthetic.

12:00 m.:	Morphin sulphate, subcutaneously, right side, 0.125 gm. in 4 c.c. of water.
12:56 p. m.:	Placed on board, tied down on left side. Resisted pricking skin of abdomen with knife.
1:02 to 1:08:	Rectal tube introduced and 41 c.c. of ether-oil administered (1 ounce per 20 pounds [9 kg.]).
1:14:	Dog cannot be aroused but lid reflex is undiminished.
1:25:	Placed on back and incision made down to peritoneum with complete muscular relaxation and perfect anesthesia. Four interrupted sutures.
2:16:	Anesthesia continues.
2:20:	Introduced small catheter beside the other and washed out with 500 c.c. of tap water.
2:33:	Voluntary movements.
2:50:	Rolled himself off the dog-board.
3:10:	Dog returned to kennel; moves about on legs groggily, selecting place to lie down; lies down in natural position.
4:00:	Sleeping, but quite easily aroused.
Dec. 10	
9:00 a. m.:	Dog completely recovered.

In the interval of one hour, between the injection of the morphin and of the ether-oil mixture, the dogs are allowed their freedom in a large space. During this time they defecate and urinate several times, but vomit only rarely. They feebly resist catching, and the weakness of the hind legs, typical of morphin, is observed in all cases. When placed on the anesthetizing table they show no signs of respiratory embarrassment, although the amplitude of the respirations is perhaps slightly less than in the normal, and the rate a little slower. In all cases they are able to stand, though somewhat groggily, one-half hour after the ether-oil mixture has been washed out of the colon, and when removed to the kennels at this time they always move about and select their own place for lying down.

Most of these experiments were performed in the afternoon, and the animals were returned to the kennels between 4 and 5 o'clock. They were always found to be completely recovered at 9 in the morning and remained in a perfectly normal state thereafter.

SERIES D

Object: To attempt the reduction of the amount of ether-oil to one-half by adding magnesium sulphate to the preliminary morphin medication.

Method: The preliminary medication consisted of the effective dose of morphin (0.01 gm. per kilogram) plus 2 c.c. of a 50 per cent. magnesium sulphate solution in one half of the cases, and the effective dose of morphine plus 4 c.c. of 50 per cent. magnesium sulphate in the other half.

Results: In all but one case, anesthesia failed to be induced. This one successful case (4 c.c. of magnesium sulphate) can only be looked on as the "one swallow which does not make the summer," since it is much more than counterbalanced by the twenty-three cases in which anesthesia did not occur. The criteria for surgical anesthesia were the same as in the preceding series.

The number of experiments performed was twenty-four.

SERIES E (*a*)

Object: To attempt a reduction in morphin by adding to it magnesium sulphate in the preliminary medication, using that amount of ether-oil which is always effective when full doses of morphin are given alone.

Method: As in Series B, the effective dose of morphin (0.01 gm. per kilogram) was fractionated and the dogs were

injected with preliminary doses ranging from 0.01 as the highest, to 0.001 as the lowest, the injection being given in 4 c.c. of a 50 per cent. magnesium sulphate solution in all cases. The amount of ether used was 1 ounce per 20 pounds (9 kg.; compare Series B 3).

Results: All these dogs exhibited a peculiar reaction. As the ether began to be absorbed from the colon they began howling, and as absorption progressed the howling increased in intensity and persisted until the attempt to induce anesthesia was terminated by washing out the colon. None of the animals indicated, by nose-pointing or otherwise, the site of the disturbance that was causing the distress. On the lowest, medium and upper doses of morphin this distress was quite agonal in intensity, and only on doses above 0.0075 gm. per kilogram did it begin to diminish. Dogs given the full effective dose of morphin (0.01 gm. per kilogram) did not manifest this reaction at all but went rapidly into anesthesia, as they would have done had they received only the morphin without the magnesium sulphate.

SERIES E (*b*)

Object: Same as above.

Method: Same as above except that the magnesium sulphate was given one-half hour before the morphin.

Results: Same as above.

The number of experiments performed in Series E (*a*) and (*b*) was thirty-one.

An abbreviated protocol is here given:

Dog 35. April, 23, 1925. Male, 7 kg. Condition good; first anesthetic.

1:25 p. m.:	Morphin sulphate, right side, 0.042 gm. (0.006 gm. per kilogram) in 4 c.c. of 50 per cent. magnesium sulphate solution.
2:22:	Tied down on board and tube introduced. The dog is profusely salivated and respirations are jerky.
2:28 to 2:34:	Ether-oil administered, 23 c.c. (1 ounce per 20 pounds, or 9 kg.).
2:40:	Beginning to howl.
2:50:	Howling very intense.
3:00:	Howling very intense; restraint necessary.
3:17:	Howling continues. Tube introduced and animal washed out.
3:24:	Howling has ceased. Respirations continue jerky; animal released.

COMMENT ON SERIES E

The invariable occurrence of these symptoms of great distress when ether was introduced after the combined injection of morphin and magnesium sulphate was very surprising. That the cause of these symptoms was the coincident presence in the organism of magnesium sulphate and ether, and that morphin played no part in forming the picture, has been shown in a number of experiments performed outside this series. Magnesium sulphate was injected alone and then followed by the ether-oil, with the occurrence of the typical symptoms. Also the picture was seen when magnesium sulphate alone was followed by inhalation ether, thus showing that the mode of introducing the ether was not the deciding factor. Further studies of this unusual manifestation of drug action are being made, but at present no explanation of even a tentative nature can be offered.

SUMMARY OF RESULTS

It has been shown in the preliminary studies of ether-oil colonic anesthesia per se described in this paper that we can invariably induce anesthesia in dogs by this method if we properly adjust these three factors:

1. The dose of the ether-oil.
2. The interval of time elapsing between the injection of the morphin and the introduction of the ether-oil.
3. The dose of the morphin.

If we now employ Factors 2 and 3 at their points of optimum effectiveness and Factor 1 at something less than that point; or, if we employ Factors 1 and 2 at their optimum points and modify Factor 3, it will then be seen that we have two very accurate means of studying the definite amount of sedation accomplished by morphin in the experimental arrangement used here. Also, we are enabled to study the ability of any other drug to increase the effectiveness of the morphin by adding it to such doses of morphin as have been previously shown to accomplish less than the definite amount of sedation. In other words, we have an acceptable method for the study of the alleged synergism of magnesium sulphate and morphin.

That this synergism does not exist, I believe to be shown by the experiments herein described, in the following ways:

1. When all the conditions for inducing the anesthesia were optimum, except for a reduction in the amount of ether, the addition of magnesium sulphate failed to affect the conditions; i. e., failed to raise the sedative power of the morphin.
2. When all the conditions for inducing the anesthesia were optimum except for a reduction in the amount of the morphin, the addition of magnesium sulphate failed to affect the conditions; i. e., failed to raise the sedative power of the morphin.
3. When magnesium sulphate and ether were coincidently present, a characteristic symptom of distress (howling) occurred. This symptom was always present unless morphin had been given in full effective dose. The presence of the magnesium sulphate did not enable smaller doses of morphin to overcome this symptom; i. e., it failed to raise the sedative power of the morphin.

PREDICTION OF SYNERGISM

Gwathmey, in neither his original pronouncements on the subject of the alleged synergism of magnesium sulphate and morphin,[7] nor in the later applictions of this synergism which he has proposed,[8] has brought forward any animal or human experimental work that proves or even strongly indicates the admissibility of the contention. Therefore, it can only be assumed that he sincerely believed that this synergism must take place because of the essential nature of the two substances; i. e., the one (magnesium sulphate) an indifferent narcotic; the other (morphin) an alkaloidal narcotic. That such predictions cannot be made is easily seen when one briefly reviews the literature that appeared during the controversy waged on this point several years before Gwathmey's publications appeared.

1. Bürgi,[9] in 1910, in attempting to adduce from experimental evidence some fixed rules for the occurrence of synergism, said:

> Two narcotics introduced into the organism simultaneously, or one shortly after the other, generally have a much stronger effect than one would expect from a simple addition of the two separate effects. This strengthening effect is of greatest significance when the two drugs are chemically related to different substances within the organism; that is to say, when they have different cell-receivers. . . . On the other hand, the effects of the narcotics of the fatty series upon each other is only additive since these drugs all have the same cell-receiver.

7. Gwathmey, J. T. (Footnote 1): Current Progress in the Science and Practice of Anesthesia, J. A. M. A. **77**: 421 (Aug. 6) 1921.

8. Gwathmey, J. T.; Donovan, E. P., and Cowan, L. R.: Painless Childbirth by Synergistic Methods, Am. J. Obst. & Gynec. **6**: 456 (Oct.) 1923. Gwathmey, J. T.; McKenzie, R. A., and Hudson, F. J.: Painless Childbirth by Synergistic Methods (Second Paper), ibid. **8**: 154 (Aug.) 1924.

9. Bürgi: Deutsch. med. Wchnschr., 1910, Nos. 1 and 2.

The work of Breslauer and Waker [10] proved this position untenable by showing that the indifferent narcotics sometimes potentiate themselves, as in the case of the alcohols and urethanes, for instance.

2. Bürgi had, however, already dropped the "cell-receiver" and, in 1911, he [11] talks of the "pharmacological point of attack," holding in effect that the opium alkaloids, for instance, add their effects only because they attack the same points in the organism, likewise the fatty narcotics; but that when two drugs, one from each class, are given together, potentiation occurs because the organism is then attacked in two separate places.

However, the work of Issekutz,[12] Straub [13] and Caesar [14] had to be accepted as challenging him here, for they showed that certain of the opium alkaloids do not merely add among themselves, but actually potentiate reciprocally.

3. Bürgi then modified his position again, holding in effect that all indifferent narcotics simply add among themselves and all alkaloidal narcotics add among themselves, and that any exceptions must be placed within a subgroup in their class. He then offers a classification of narcotics, placing together in the different groups all those between which he had found no evidence of synergism. Thus he is led to place the antipyretics (which we may look on as weak narcotics for several reasons) in the same group with ether, chloroform, urethane, etc., because he found that no synergisms take place between these substances.

Overton,[15] however, had shown on lower forms that there is sufficient difference between the action of antipyrin and pyramidon, on the one hand, and the other antipyretics, on the other hand, to force them into a separate narcotic subgroup. And once there, they should potentiate the action of the narcotics of the fatty and aliphatic series left in the group from which they have just been taken. Lomonsoff,[16] however, one of Bürgi's own pupils, failed to find any evidence of this synergism.

Also, it has been shown that, in the cases of a number of substances acting in the same way but belonging to different pharmacologic subgroups, not only does the predicted synergism fail to occur, but additive effect does not take place. Thus, it was shown by Issekutz [17] that when giving combined doses of strychnin and picrotoxin to the frog, the effect was almost entirely the effect of that particular drug which was given in largest amount.

It is surely quite apparent from the foregoing that prediction of synergism in any given case by reason of the classification of the drugs that are being combined is practically impossible, and that only actual experimental results can be accepted as having any scientific value.

CONCLUSIONS

1. It has been shown in rabbits (Issekutz) and in dogs (this paper) that the alleged synergism between magnesium sulphate and morphin does not take place.

2. No satisfactory evidence has been brought forward to show that this synergism does occur in man.

10. Breslauer and Waker: Ztschr. f. allg. Physiol. **13**: 282, 1912.
11. Bürgi: Ztschr. f. exper. Path. u. Therap. **8**: 523, 1911.
12. Issekutz, B.: Arch. f. ges. Physiol. (Pflügers) **145**: 415.
13. Straub: Biochem. Ztschr. **41**, 1912.
14. Caesar, H.: Biochem. Ztschr. **42**: 316, 1912.
15. Overton: Studien über die Narkose, 1901, p. 166.
16. Lomonsoff: Ztschr. f. exper. Path. u. Therap. **8**: 566, 1911.
17. Issekutz, B.: Arch. f. ges. Physiol. (Pflüger's) **151**: 456, 1913.

TREATMENT OF INTRACRANIAL HEMORRHAGE IN THE NEW-BORN *

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The adoption of any form of treatment for any condition should depend on whether that treatment is rational from the standpoint of known facts concerning the condition, or on a long experience, the success of which amply justifies the measures.

Of the conditions that are known to be especially fatal to the new-born infant, none is more frequent than intracranial hemorrhage. It is therefore quite necessary that we consider this condition from the standpoint of treatment since remedial measures, if successful, will go far toward reducing infant mortality in the first week of life. A short consideration of the pathology and symptomatology should serve as a background for successful treatment.

The hemorrhages in question usually occur on the surface of the brain most often over the convexity, but at times beneath the tentorium. Sometimes the hemorrhage occurs within the ventricle frequently leading to rupture of the ventricle and to the escape of the blood on to the surface of the brain. It has been shown by Schwartz [1] that within twenty-four hours after these hemorrhages occur, there is distinct destruction of nervous tissue and that this destruction extends but slightly after that caused by the initial hemorrhage. It seems altogether likely that the destruction of nervous tissue by pressure from hemorrhage takes place in less time than twenty-four hours. It has been asserted by some that many hemorrhages are of such slight nature that they cause little or no disturbance and that they go unnoticed but still leave their effects. If we may judge of the effects on the brain from the effects on the retina, as shown by the recent findings of Jacobs,[2] where there was very evident recovery from multiple hemorrhages in the retina without apparent disturbance of vision, we might suspect that such hemorrhages, too, occur on the surface of the brain.

The symptoms of this condition are notably unreliable in the early stages. In the severe case with extreme hemorrhage, death may occur, within a few hours without any symptoms that point to involvement of the brain; and it is well known that it is rarely possible to diagnose the condition within from twenty-four to forty-eight hours by the symptoms alone. In fact, there is doubt in most instances, whether there is any pathologic condition of the brain until convulsive seizures with bulging fontanel and other pathognomonic signs lead one to suspect the seat of the trouble.

It has been urged that the condition is such a serious one that any form of treatment is justifiable; that the presence of a hemorrhage means death or mental deficiency, and that remedial measures of a radical nature are justified on this basis. In respect to mental deficiency there are two points to be considered: The first is that while many assume that the brain defect is in all instances the result of hemorrhage, few have suggested that the hemorrhage may be favored by an existent brain defect. In the present state of our knowledge it would seem to me impossible to distinguish between

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1. Schwartz: Ztschr. f. Gesamt. Neurol. u. Psychiat. **90**: 263, 1924.
2. Jacobs, M. W.: Retinal Hemorrhages in the New-Born, J. A. M. A. **83**: 1641 (Nov. 22) 1924.

two such conditions, and I cannot feel that we are justified in assuming that the hemorrhage necessarily is the cause of the defect in all cases or perhaps in most cases. In the second place, my experience has not justified such a bad prognosis. In a condition as hard to diagnose as intracranial hemorrhage, one may always make mistakes, so that it is with some reservation that I record my experience; but certainly on two occasions when the classical symptoms of intracranial hemorrhage have been present and when there was little question in the minds of medical men who saw the patients of the existence of such a hemorrhage, and that of serious proportions, the children have come off practically unscathed so far as their present condition shows, nor was there in either of these cases any operative intervention of any kind.

Different operative measures have been suggested to relieve the condition. The decompression operation has, I think, been pretty well discarded. In my own experience it was anything but successful. An attempt to tap the hemorrhage by way of the anterior fontanel is employed by some. In regard to this, there are several objections to be offered. In the first place, one is by no means ever sure from the character of the symptoms as to the location of the hemorrhage. Second, if the vessels are not yet thrombosed, then removal of the blood results only in refilling the area with blood; and third, if the hemorrhage has stopped, it seems hardly possible that the brain substance should have escaped damage.

The latest method of treatment, that of Sharpe [3] and his co-workers, is lumbar puncture. Lumbar puncture necessitates the holding of the child in such a position as definitely to produce venous congestion in the cranial cavity, which, of course, favors further hemorrhage. The technical difficulty involved in lumbar puncture at this age, and especially in these cases when we consider that so many of them occur in premature infants, is such as in the majority of cases to make the findings in the fluid questionable. A recent careful anatomic dissection by Dr. Sanford of the Presbyterian Hospital, Chicago, has shown that not only is the venous plexus within the spinal canal extremely rich at this age, but also the bodies of the vertebrae are practically venous sinuses. When we consider the small size of the spinal canal and especially of the posterior foramina together with the richness of the venous plexus and the richness of the blood supply to the vertebrae, we realize that only the exceptional lumbar puncture can be relied on and that presence of blood in the spinal fluid withdrawn under these conditions is of extremely doubtful value in the diagnosis of intracranial hemorrhage. As to the advisability of using lumbar puncture as a remedial measure, the objections are very much the same as those mentioned in fontanel puncture. In the first place, if there is a large amount of blood within the canal, its removal may simply effect a renewed hemorrhage; and if the hemorrhage has lasted for twenty-four hours, the damage is already done and lumber puncture will do practically nothing to relieve it. But even if all these theoretical objections to the various methods of treatment were present, we still would feel justified in carrying out these measures if the practical results were satisfactory; but such is far from being the case.

We therefore feel that in the present state of our knowledge the best treatment for intracranial hemorrhage is absolute quiet and rest; that the measures up to the present time adopted for the relief of the condition are satisfactory neither from the theoretical nor from the practical standpoint; that the damage is done before the measures can be of value, and that, as a consequence, until we make a diagnosis much earlier than seems at present possible, the best plan to be followed is to see that nothing is done to disturb the quiet of the infant.

104 South Michigan Avenue.

3. Sharpe and Maclaire: Am. J. Obst. & Gynec. 9: 452, 1925.

ABSTRACT OF DISCUSSION

DR. J. B. SIDBURY, Wilmington, N. C.: I have studied 130 cases, and sixteen have been definitely proved to be due to hemorrhagic disease. Others had blood in the spinal fluid, and others at necropsy showed hemorrhages in the viscera. There are two factors to be considered: one is the mecha..ical factor and the other is the factor of predisposition in the new-born. It is found that 50 per cent. have a tendency to bleed early; in other words, many new-born children are classified potentially as having hemorrhagic disease of the new-born. As to the damage that may be done in twenty-four hours, I would withdraw such blood as may be withdrawn, and blood can be hypodermically injected to replace the blood withdrawn; but it is a question whether it is not best to leave the child alone. I think that lumbar puncture can be done with reasonable care, and if one can withdraw from the spinal canal from 1 to 3 ounces of fluid, the child is better off without that blood. Transfusion will stop the hemorrhage, and intramuscular injection of whole blood will stop the condition from progressing.

DR. JOSEPH WALL, Washington, D. C.: There are two points that should be emphasized. It is first necessary to make a diagnosis before treatment can be instituted, and some of these cases seem to possess a period of latency in which there are very few symptoms manifested. During this quiescent period many minor disturbances may be overlooked by the attendant, especially the obstetric attendant who does not always know how to interpret them. Infants differ in the physiologic irritability of their nerve tissue just after birth and react in different ways to effusions of blood on or into the brain. Symptoms in some cases are aggravated by nursing or crying, during which the spread of nervous impulses may bring about rather characteristic convulsions, overlooked by the obstetrician, but noticed by the mother. I think that Dr. Grulee is rather pessimistic with regard to treatment. We must recognize that intracranial hemorrhage is not a solid, mechanical clot—it is more in the nature of an effusion. The damage to nerve tissue cannot all be done in the first twenty-four hours, else why should the surgeon remove the hemorrhage from a ruptured meningeal artery if the person has irreparable damage within a few hours? I think we should remove the fluid that can be withdrawn through a needle either to save the patient from early death, or from the later living death of mental defectiveness.

DR. JOHN A. FOOTE, Washington, D. C.: I have collected operations on about forty cases of intracranial hemorrhage. We frequently do not see the cases until after the early symptoms have developed. Kundrath made the first important studies at necropsy, which should take preponderance of subtentorial bleeding in these infants, and he accomplished this by a special technic in removing the brain. Adair recently confirmed his work, and Wilson has had identical findings. As to the eye symptoms, Paul has made observations in regard to early hemorrhage in the retina, and Kearney confirmed Paul's work. Undoubtedly, interest in his condition has been generally awakened. Many infants have no early symptoms, but I regard the cessation of nursing once it has begun, perhaps on the second or third day, of utmost symptomatic importance.

DR. JULES M. BRADY, St. Louis: Those who have been treating this condition the last eight or ten years by spinal drainage will not agree with Dr. Grulee. It is true that lumbar puncture is difficult in young infants and, at times, as a result of injury to the delicate veins, red blood runs through the needle. But when one gets port wine looking fluid, as described by Dr. Foote, there can be no mistake. Sharpe has

called attention to the fact that in 10 per cent. of punctures no fluid is obtained—a dry tap. During the last few years I have been performing cistern puncture, which is a better procedure. It is all right to theorize, but, as in infant feeding, it is necessary first to find out what methods were successful and then attempt to discover the proper explanation. Intracranial hemorrhage should be thought of in every baby acting abnormally. The failure of the baby to nurse properly is a frequent symptom; bulging of the fontanel is not common. O'Brien and Ehrenfest have demonstrated that the condition does not depend on the hemorrhagic disease, but that there is a tear in the falx or tentorium. In some instances, untoward symptoms depend on an edema of the brain. Favorable results following subarachnoid drainage come from relief of the increased intracranial pressure; it is not supposed that we remove all the blood. Spinal drainage will save lives and prevent after-consequences in a large percentage of these infants.

DR. EFFA V. DAVIS, Chicago: I should like to give a word of advice as to the etiology of cranial hemorrhage in the new-born from the obstetrician's point of view. Many times the complication arises from toxemia that has existed in the mother and fetus for weeks before birth. Toxic matter floating in the blood weakens the blood vessels of the child—renders their coats friable, and they yield more readily to any extra strain put on them at the time of birth. If we can prevent toxemia in the mother, I believe we may check the frequency of cerebral hemorrhages in the new-born. Edema of the brain occurring from the same cause may be mistaken for hemorrhage. In regard to nursing, a toxic child will often refuse to nurse or do so only at long intervals and still not suffer from a hemorrhage. The prevention of oversized babies will check the tendency of serious trauma of the cerebral vessels also, as greater pressure must be expended to deliver a large child than a small or moderate sized one, though the normal blood vessels in a fetal brain will withstand an enormous amount of compression. The control of diet and exercise to eliminate toxemia in pregnancy or oversize of the fetus will do much to avoid trauma of the cerebral blood vessels of the new-born.

DR. JOHN A. FOOTE, Washington, D. C.: I did not say that the child does not nurse. I said that the child commences to nurse vigorously, and then, about the second or third day, the child stops nursing.

DR. S. J. WILSON, Brooklyn: I must disagree with the neurologist who said that the most frequent site of intracranial hemorrhage in the new-born was around the longitudinal sinus. In a series of forty-nine cases reported by me there were only two in which the hemorrhage was traced to the longitudinal sinus; in one case a blood transfusion was given through the sinus and the needle punctured the inner wall of the sinus, and the blood was injected into the posterior part of the right lobe. In most of the other forty-seven cases the hemorrhages were subtentorial, subdural (cortical) and intraventricular. I agree with Dr. Foote that in some of the subtentorial cases, especially with slow bleeding, one will not get the symptoms until the fifth day. It takes time for enough blood to run down to the medulla to give signs. I cannot agree with Dr. Grulee about leaving these children alone. Some obstetricians do not agree with our method of treatment. They leave the children alone, but the results are not as good as when we do lumbar puncture. The child will recover more quickly and with fewer after-effects. Three cases with symptoms of intracranial hemorrhage at birth treated by lumbar puncture were observed for a period of three years, and have so far not shown any further signs; two clinically similar cases, without lumbar puncture, observed for a period of two years, have shown signs of intracranial injury. The dangers of lumbar puncture, under proper precautions, and with a good assistant holding the baby, are nil. Lately, we treated one case with cistern punctures. It was a case of myelomeningocele of the lumbosacral region. Every time we went in, we obtained fluid. The necropsy showed no injury to the cord or medulla at the site of punctures.

DR. HERMAN SCHWARTZ, New York: If one analyzes carefully the results obtained, they are difficult to evaluate. No one has had such a large series of cases that he can say positively one thing or another. I think that brain edema has a great deal to do with the symptoms in the new-born. One can observe the eye changes, and also make an examination of the static labyrinth. I have had the cooperation of an otologist, and have been able to prove a cerebral condition. In regard to treatment, I do lumbar puncture sometimes. I think I get blood. How often has that occurred in the fifty cases of Dr. Wilson? How often have we had blood in the spinal fluid with cerebral hemorrhage? For fifteen years I have been doing lumbar puncture in these children. In most instances I have not been sure of the findings. I do not know whether I have got blood due to hemorrhage of the brain. I do not know whether I agree with Dr. Grulee or not. I shall continue making lumbar puncture, but I have not really felt that I have helped these children. I do not think it does any harm. In some cases in which I thought there was cerebral hemorrhage, the convulsions stopped and the child got well, and in other cases they have not stopped and the child has not got well. I do not think that we should fool ourselves that we are doing a great deal by doing lumbar puncture. I was enthusiastic about Cushing's work, and I did four operations according to his technic. The first one gave a wonderful result. There was a cortical hemorrhage and the clot was drawn out. The child had other hemorrhages and died later. In the other three cases we did not find the hemorrhages. I would not advise this operation. In doing lumbar puncture I use a very fine needle. If it is used with care one can generally get fluid, but if one does not succeed the first time, I think that one should stop.

DR. C. G. GRULEE, Chicago: I believe these cases are rarely caused by hemorrhagic disease. I think they are nearly all traumatic in origin. Dr. Sidbury said it would be very easy to do lumbar puncture without increasing venous congestion within the cranial cavity. Since it is necessary to bend the infant as far as one can to get the needle into the spinal canal, I cannot understand the basis for his statement. Dr. Wall speaks of minor disturbances and compares the adult brain with the brain of a new-born child. It is easier to handle the adult brain because there is some chance to relieve pressure before damage is done. The brain of the new-born infant is jelly-like in consistency, and hemorrhage into this soft material would be far more destructive than into the brain of an adult. Dr. Grinker begs the question when he presupposes that these are primarily hemorrhages and not primarily defective brains. We cannot prove that these brains are not primarily defective with secondary hemorrhages. When one inspects these lesions, one can readily see that they are a miniature of the rest of the brain. They retain the conformity of the cerebral convolutions. Of course, I am speaking of porencephaly. The power of recuperation is only in the glia cells and not in the nervous tissue. Dr. Foote regards the fact that the infant starts to nurse and then stops as pathognomonic. I would not be willing to accept this without reservation. I do not think that this means only intracranial hemorrhage. Cistern puncture, I think, should be helpful, but I have not tried it. It might be of some value, not from the standpoint of treatment, but from that of diagnosis. I still think the damage is done by the time the symptoms suggest the presence of the disorder. I have not heard anything today that contradicts that point. With edema of the brain I have had very little experience. My colleague believes in lumbar puncture. In one such case he obtained, first, fluid; second, blood, and the third time, fluid. At necropsy, edema of the brain was found. The brain was so swollen that the cortex was flattened against the skull. There was great edema, but lumbar puncture did not relieve it. So far as pathologic studies go in Little's disease, I have had no experience. I do not know anything about labyrinthine tests. Dr. Schwartz's remarks about the significance of blood in the spinal fluid are certainly in accord with my experience. Some one advised the use of a fine needle. I abandoned that practice for the reason that if a fine needle is so limber that one loses the direction of the thrust, one may frequently go to one side. A needle must be large enough of caliber or one will have difficulty. I use one of medium caliber because of this.

ALLERGY: A NONSURGICAL DISEASE OF THE NOSE AND THROAT *

GEORGE PINESS, M.D.
AND
HYMAN MILLER, M.D.
LOS ANGELES

The reaction of the mucous membrane lining the respiratory tract produces a characteristic clinical picture in a certain definite group of persons who exhibit an abnormal sensitivity to protein substances. Such individuals are separated from the normal by the appellation "allergic." As the work of Adkinson,[1] Cooke and Vander Veer [2] and Spain and Cooke [3] shows, heredity is an important factor in explaining the existence of such a group of individuals, which may be estimated as consisting of about 10 per cent. of the population, a group sufficiently large to merit recognition, for undoubtedly its members come under the almost daily observation of the practitioner who limits his field to the nose and throat. Its proper recognition is dependent on a knowledge of the manifestations of allergic phenomena.

Limiting ourselves to the mucous membrane lining of the respiratory tract, we find enumerated as of allergic etiology, hay-fever, seasonal and perennial, vasomotor rhinitis, acute and chronic, and bronchial asthma. These clinical distinctions of allergic phenomena of the upper and lower respiratory tract are purely symptomatic, are restrictive in their application, and tend to obscure the true cause of the complications and sequelae which so often supervene. Immunologically and pathologically they are the same process, nor do we intend to distinguish between them in our discussion. When the respiratory mucous membrane of an allergic individual is exposed to the proteins to which he is sensitive, a characteristic reaction results. Whether the protein is inhaled, thus coming into direct contact with the mucous membrane, as is the case with pollen proteins, and the proteins of the animal hairs and feathers, or, what is often unrealized, ingested in the form of food proteins, the reaction is the same. In other words, whatever the source of the protein, or whatever its means of reaching the respiratory mucous membrane, we find a characteristic picture.

Typically, as Montgomery [4] states, there is a very marked redness of the pharynx with hyperplasia of the lymphoid tissue both medially and laterally with considerable secretion of mucus. In the epipharynx, the mucous membrane is frequently congested and weeping; in the nose, swollen turbinates are quite constantly present and the mucous membrane may be a dull red, and at other times pale, flabby, soggy in appearance, and dripping with thin, watery secretion. The same vasomotor congestion extends, at times, up the eustachian tubes and invades the middle ear, giving here dusky drums which cannot be differentiated from any tubal or middle ear congestion of a low grade bacterial type. Characteristically, then, we have, in any portion of the respiratory tract, a mucous membrane lining in which the lymphoid tissue is hyerplastic, the mucous glands oversecreting, the blood vessels engorged, and the tissue, as a whole, swollen, and intumescent even to the extent of polyp formation.

The description given above is not only that of an acute case of so-called "seasonal" hay-fever, nor is it a description of chronic, periodically recurrent so-called vasomotor rhinitis. It is a description of both an acute and chronic allergic manifestation without complications in the lining mucous membrane of the respiratory tract. It is the picture that one often sees in children whose only complaint is obstruction to nasal breathing, excessive nasal discharge, and frequent colds in the head. It is the basis of the picture that we see in adults and especially in those adults who, in addition to the symptoms described above, have reached the age at which they can also give a history of many operations on the nose and throat and more particularly on the nose. These include innumerable removals of polyps, amputations, excisions and crushings of turbinates, more or less radical operations on the nasal sinuses, and other procedures, all aimed at the same goal, viz., the establishment of free drainage from an infected and obstructed cavity, a logical procedure in view of the diagnosis of the rhinolaryngologist—chronic sinusitis. What has been the sequence of events from childhood into adult life which has led the rhinolaryngologist to his diagnosis of chronic sinusitis, for it is only this diagnosis which justifies for him the numerous operative procedures enumerated above?

Todd [5] reviews this sequence of events as follows:

> During each attack of hay-fever, swelling of the turbinates takes place, causing defective drainage, secretion occurs, infection is added thereto and we have present during pollinosis, ethmoiditis and sometimes pansinusitis. Repeated attacks of pollinosis may result in a persistent lesion, and thus the patient may develop chronic ethmoiditis, sphenoiditis, frontal sinusitis or pansinusitis often accompanied by persistent swelling of the turbinates and especially of the middle turbinate.

Substitute for or add to the word pollinosis "ingestion of protein and exposure to animal emanations," and we have a rational explanation for the rhinolaryngologists's procedures. Although the rhinolaryngologist, in view of the present state of our knowledge concerning allergy, would not think of performing an operation during an acute attack of what he knows and recognizes as "seasonal" hay-fever (Todd's pollinosis), he persists in operating when the condition has become chronic or when, there being no seasonal variation, he forgets that the respiratory mucous membrane may respond to foreign proteins ingested through the gastro-intestinal tract at any time of the year or throughout the year in exactly the same manner as to those derived from the pollens coming into contact with the respiratory mucous membrane only during the pollen seasons. Infection, in many instances, is thus not the primary cause of obstruction to sinus drainage, and as a result, amputation of turbinates, straightening of septums, and opening of holes into the bone does not insure a cure of symptoms. The sensitized mucous membrane is still present, and the proteins active in producing allergic phenomena in this membrane have not been eliminated.

It is not unexpected, therefore, that a critical examination of operative procedures in the respiratory tract should be productive of such adverse findings as are here presented in a group of 834 patients who have been under observation for various manifestations of allergic

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Adkinson, June: The Behavior of Bronchial Asthma as an Inherited Character, Genetics **5**: 363 (July) 1920.

2. Cooke, R. A., and Vander Veer, A., Jr.: Human Sensitization, J. Immunol. **1**: 201 (June) 1916.

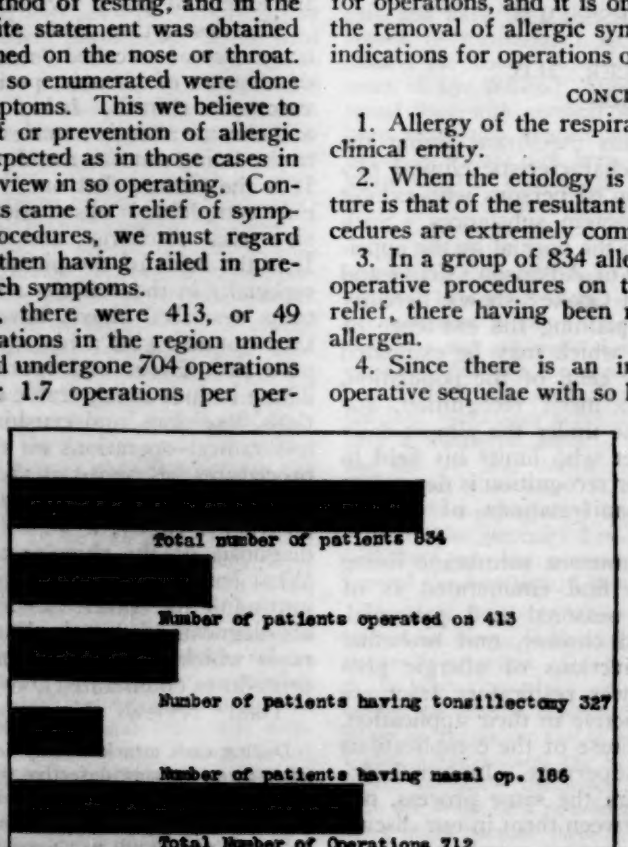
3. Spain, W. C., and Cooke, R. A.: Studies in Specific Hypersensitiveness, IX, The Familial Occurrence of Hay-Fever and Bronchial Asthma, J. Immunol. **9**: 521 (Nov.) 1924.

4. Montgomery, C. H.: Personal communication to the authors.

5. Todd, F. C.: Ethmoiditis as a Common Sequel of (Never the Cause) of Pollinosis (Hay Fever), J. A. M. A. **59**: 1090 (Sept.) 1912.

phenomena of the respiratory tract (recorded on the accompanying chart). In this group, every member gave one or more definite reactions to some foreign protein by the usual scratch method of testing, and in the course of the study, a definite statement was obtained as to the operations performed on the nose or throat. True, not all the operations so enumerated were done for the relief of allergic symptoms. This we believe to be beside the point, as relief or prevention of allergic symptoms is as well to be expected as in those cases in which this object was held in view in so operating. Considering that all these patients came for relief of symptoms after the operative procedures, we must regard the operative procedures as then having failed in preventing, allaying or curing such symptoms.

Among the 834 patients, there were 413, or 49 per cent., who had had operations in the region under consideration. These 413 had undergone 704 operations on the nose and throat, or 1.7 operations per person. The operations were divided into 327 on the throat—adenotonsillectomy being considered a single operation—and 377 on the nose. The 377 nasal operations were performed on 186 patients, giving an average of slightly more than two nasal operations for each patient. The highest number of operations on a single patient was eighteen, terminated by a double radical operation on the frontal sinus. Lintz[6] has truly said, in discussing operations in allergy, "I know of no anatomical portion of the body that is operated upon so much as the nose, but the limit of operations is reached when you come to consider the nose in asthmatics." The same author[7] gives a group of 300 patients showing allergic manifestations, of whom fifty-six, or 18.7 per cent., had had operations on the nose and throat. Of these, thirty-three, or 59 per cent., were on the throat, and twenty-eight, or 41 per cent., on the nose, no account being made of multiple operations in a single individual, "with not a single patient cured by any of these operations.' Kahn[8] also gives a group of ninety-four cases of allergy, thirty-three in which operations were done on the nose and throat without relief. With Selfridge,[9] he agrees in condemning operative procedures on the nose and throat for the relief of allergic manifestations.


Total number of patients 834
Number of patients operated on 413
Number of patients having tonsillectomy 327
Number of patients having nasal op. 186
Total Number of Operations 712
Number of adenotonsillectomies 340.
Number of intranasal operations 372

Number of operative procedures on the nose and throat of allergic patients.

In addition to the fact that the patients so subjected to operation seldom if ever obtain relief, we have also the untoward sequelae of operative procedures to consider, as is to be expected in so large a group of operative cases. Of course, many of these untoward sequelae must be classed as accidents or the result of unskilful surgery and, as such, provide no argument against operations. However, such undesirable results are multiplied with the multiplying of the indications for operations, and it is on this basis also that we urge the removal of allergic symptoms from the category of indications for operations on the nose and throat.

6. Lintz, W.: Bronchial Asthma, M. J. & Rec. 119: 287 (Nov.) 1924.
7. Lintz, W.: Lack of Operative Indications in Asthma and Other Forms of Allergy, Ann. Surg. 79: 917 (June) 1924.
8. Kahn, W. H.: Nasal Operations in Bronchial Asthma, J. A. M. A. 82: 536 (Feb.) 1924.
9. Selfridge, G.: Disturbance of Metabolism and Its Relation to Certain Disorders of the Respiratory Tract, Laryngoscope 32: 243 (April) 1922.

CONCLUSIONS

1. Allergy of the respiratory mucous membrane is a clinical entity.

2. When the etiology is obscure and the clinical picture is that of the resultant complications, operative procedures are extremely common.

3. In a group of 834 allergic patients, there were 704 operative procedures on the nose and throat without relief, there having been no removal of the offending allergen.

4. Since there is an increasing risk of untoward operative sequelae with so large a number of operations, we urge that allergic manifestations be classified as nonoperative conditions of the respiratory tract.

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ABSTRACT OF DISCUSSION

DR. ANDREW A. EGGSTON, New York: Being a pathologist in an eye, ear and throat hospital, I have had quite a large experience in allergy and its relation to the nose and throat. In fact, most of these cases at our hospital are studied cooperatively in order to determine what is best to do for the case. Undoubtedly, there are some clinical syndromes that are manifestations of pure uncomplicated allergy cases of the nose, throat and bronchial tubes, and as allergy is a general condition, or a local manifestation of a general reaction, most physicians will agree that operations in these cases will not produce beneficial results. However, the fundamental explanation of allergy has not been developed, and undoubtedly there must be some pathologic condition of the membranes in the nose and throat, bronchial tubes, or in the gastro-intestinal tract that permits the development of sensitization to a foreign substance. The whole question of the basic causes of allergy is in quite a chaotic state. It may be a reaction of the parasympathetic nervous system, and some nose and throat men seem to think that that has a great deal to do with it. Certainly, operation on the nose and throat would hardly be indicated unless there are some associated complications. I think that the nose and throat men generally recognize this, and I do not think that they are inclined to operate on the nose and throat for a simple case of hayfever or a simple case of asthma. On the other hand, with the constant irritation of the mucous membrane of the cavities of the nose, complications develop, such as empyema and then surgery is indicated and is an absolutely essential procedure in these cases. The treatment of nose and throat infections in asthma, to my mind, is very important. In fact, the treatment of asthmatic patients involves a great deal more than simply the treatment by foreign proteins. I think one should take into consideration the general status of the patient's health and the relief of any focal infections. If it is necessary to take out the tonsils to improve the general

condition of the patient, I think it is perfectly justifiable. While there is point to an argument against surgical procedure in purely allergic cases, on the other hand, nose and throat operations are essential to relief in some cases. Undoubtedly, all cases of asthma and hay-fever should be studied in consultation between the immunologist and the internist in order to obtain the best results.

DR. GEORGE PINESS, LOS ANGELES: Dr. Eggston's discussion brought out the fact that nasal surgery should be done when indicated. I say the same thing in my paper. Because a man has a sinusitis is no indication why he should be treated with protein extracts and the sinusitis remain. I believe that when surgical procedure is indicated, it should be done, regardless of the asthma or the hay-fever. What I attempted to bring out in my paper was this—that asthma and hay-fever are usually allergic and not surgical conditions. Some patients, regardless of surgery, are not made better. I am not attempting to take the work from the nose and throat men, but I feel that with cooperation between the immunologist and the otolaryngologist and the otorhinologist, the patients will be better taken care of than they are today by either one of us singly.

THE REVISION OF THE UNITED STATES PHARMACOPEIA *

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Dr. Lyman Spalding and his associates, who originated the United States Pharmacopeia, would be astonished, were they here today, to learn that it is necessary to point out its advantages to this audience since it was controlled by physicians alone during the first thirty years of its development.

We are prone to assume that the Pharmacopeia concerns only pharmacists, and that we have no interest in the details of the work of revision. This is an unfortunate attitude, detrimental alike to pharmacy and to medicine.

Many pharmacists and chemists give their best efforts to the development of the Pharmacopeia, they are indefatigable in their efforts to secure high standards of purity of official drugs, and it is patent to all who have given the subject careful study that they take far more interest than most physicians in the work of revision.

It is impossible, however, to develop a pharmacopeia which represents everything that is best in medicine without the earnest cooperation of many clinicians, pharmacologists, chemists and pharmacists. It is the duty of the clinician and the pharmacologist to select those therapeutic agents which are indispensable in the treatment of the sick. It is just as necessary to exclude those substances which are not indispensable, because when an unnecessary drug is used, it displaces a better one, obviously to the disadvantage of the patient and the reputation of his physician.

The time at my disposal permits a brief discussion of only a few of the more important features of the Pharmacopeia,[1] including the scope, chemical tests that assure the purity of official chemicals, and the chemical and biologic assays that assure, so far as possible, uniformity of activity of vegetable and animal drugs and preparations.

It is axiomatic that one cannot understand an institution that has had a century of development unless one knows something of its history, and the physician will find it profitable to peruse the outlines of the history of the Pharmacopeia with the ten revisions that have been made.

The physician must know something of the Pharmacopeia in order to avail himself of the advantages that it offers him, but this fact is often ignored, and a great many physicians are lamentably ignorant concerning the work. An intern in Bellevue Hospital told me that many young graduates of medical schools hardly know that there is such a book, and that they are frequently embarrassed by their lack of information when they hear others discuss official drugs and preparations as distinguished from those which are proprietary. It is the duty of all teachers who are concerned with therapeutic instruction to assist in familiarizing students with the Pharmacopeia.

Stress should be placed on the use of official names of drugs and preparations, especially in prescription writing. The Pharmacopeia contains a wealth of information for the student of chemistry and medicine and for the prescription writer. This includes suitable abbreviations, solubilities in various vehicles, and doses. The physician will often find it convenient to know in what form suitable for dispensing a given drug is official. This information is given in every case in which a drug enters into an official preparation.

The physicians (including all who have the title M.D.) of the subcommittee on scope are responsible for the selection of the therapeutically active substances that have been admitted; the pharmacists are responsible for the selection of those articles which are admitted because of their being pharmaceutical necessities. The latter include reagents for testing chemicals, solvents, and menstruums which are necessary in various pharmaceutical processes—in short, those substances for which standards must be provided but which the physician does not prescribe directly.

The United States Pharmacopeia of 1890 contained 994 titles, but the forthcoming revision will have only about two thirds as many, exclusive of those which were admitted as pharmaceutic necessities. It is the purpose of the Committee of Revision to admit only those drugs which are worthy of careful study by the physician, and the Pharmacopeia will be increasingly important as a reference work in medical colleges and for the clinician. The Committee of Revision has erred on the side of liberality, if it has erred at all, rather than on the side of conservatism in selecting official drugs; and the 630 official crude drugs and preparations that have been included because of their therapeutic value exceed the list of useful drugs selected by the Council on Pharmacy and Chemistry of the American Medical Association, which is designed to include every essential therapeutic drug, irrespective of its origin and whether it is proprietary or nonproprietary.

A mere comparison of numbers alone would be of little value, however, since the two lists might overlap but little. As a matter of fact, the Council's list of useful drugs contains only five, exclusive of vaccines, antimeningococcus serum and mixture of diphtheria toxin and antitoxin, which will not be in the Pharmacopeia either in the identical form in which they are listed in "Useful Drugs" or in an equivalent form. "Useful Drugs" contains in addition a few pharmaceutical preparations, such as liniment of ammonia and spirit of ether, which are not in the Pharmacopeia.

One who follows the work of the Council on Pharmacy and Chemistry and that of the Committee

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* Read before the Section on Pharmacology and Therapeutics at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. This paper is concerned mainly with the forthcoming Pharmacopeia, which will be issued shortly, and the tenth revision is meant unless another is specifically mentioned.

of Revision of the Pharmacopeia will find that the Pharmacopeia and the Council's list of useful drugs constantly tend to become a unit so far as the selection of therapeutic agents is concerned. The physician who disregards the conclusions of two groups which have studied this question intensively assumes no light responsibility when he uses unofficial drugs without having studied their actions with great care.

It has long been the boast of the thoughtless physician that he uses anything whatever if he believes it to be to the advantage of his patient. Many believe that this shows a broad spirit and a liberal attitude whereby they are freed from the shackles of conservative medicine, and that they are able to choose their therapeutic agents more wisely than he who limits himself to the use of official drugs. It is worth while, however, to inquire into the correctness of the assumption that one treats his patients to greater advantage when one selects one's drugs wherever they may be found.

Section 6 of Chapter II of the "Principles of Medical Ethics" of the American Medical Association says: "It is unethical to prescribe or dispense secret medicines or other secret remedial agents, or manufacture or promote their use in any way."

Nothing could be further from my mind, or that of any sensible man, than the attempt to limit the freedom of action of the clinician who bases his choice of drugs on accurate knowledge, regardless of the source of that knowledge; but I do condemn the callousness of those who use unofficial drugs on hearsay testimony alone—often that of the interested proprietor.

I had occasion recently to examine the literature of a proprietary preparation which in 1921 was reputed to consist of two well known hypnotics. I find that it is now described as consisting of equal parts of barbital and a newly discovered hypnotic. No reference was made in either of two recent articles to any change in the formula, though the papers of others who had used it when made by the older formula were cited. No such confusion concerning official drugs will occur.

A recent examination of numerous commercial preparations of pituitary showed that some were only one-tenth as active as they were supposed to be; some were five times as active as represented, or fifty times as active as the weakest. Such variability in activity of the official preparations of pituitary will be avoided.

The Pharmacopeia provides rigid standards of purity of drugs for which chemical tests are available. These tests have been studied with extraordinary care, and they suffice to insure a high degree of purity, and no official chemical may be dispensed legally if it contains any harmful impurity. Absolute purity is seldom attainable in practice, and pharmacists and chemists have devoted an enormous amount of time and care to the methods of preparing official chemicals which are free from more than traces of impurities that would be harmful in large amounts. Traces of impurities in drugs are not injurious to the patient. The manufacturers of many proprietary preparations observe no limitations except those that they choose to impose, and these may be changed at will.

It is impossible to give in a few words an adequate idea of the extraordinary care and the amount of labor that have contributed to make the Pharmacopeia a model of its kind. The Committee of Revision has had the assistance and cooperation of a large number of workers in many fields, including several of the bureaus of the federal government, research institutes, and chemical factories. Certainly, few books represent an equal amount of exact work, and few so nearly represent the sum of human knowledge within the scope of the work. A glance at the many pharmacopeial tables will afford an idea of the work that has been done.

The biologic tests insure, as nearly as possible, the uniform activity of various drugs for which no satisfactory chemical tests are available. It is admitted freely that the biologic tests are not entirely satisfactory; but they are the best that human ingenuity has been able to devise after long and careful study, and efforts to improve these methods are being made constantly.

The digitalis bodies are standardized by comparing their activity on the frog's heart with that of ouabain; but there was no pure stable digitalis principle of uniform composition that was readily available as a standard until the Bureau of Chemistry perfected a method of crystallizing ouabain with a constant number of molecules of water of crystallization. The Pharmacopeia provides biologic tests for aconite, antitoxin, arsphenamin, cannabis, cod liver oil, the members of the digitalis group, epinephrin, ergot, and solution of pituitary.

There is a fairly widespread belief that the therapeutic action of the infusion of digitalis differs qualitatively from that of the tincture; whatever may be said of this view with reference to the official infusion, it is worthy of note that several manufacturers print directions on the labels for making the infusion from the fluidextract. It is also commonly believed that the infusion of digitalis decomposes very rapidly; and while one cannot say that rapid decomposition of the infusion never occurs, one may feel confident that the official infusion will not decompose during a period of a week if it is kept cool and given ordinary care. The method now official for preparing the infusion of digitalis insures greater uniformity of activity, and this removes one of the greatest objections that has heretofore been urged against its use.

One hundred and ninety-one articles that were official in the ninth revision of the Pharmacopeia have been dropped, and fifty have been added. The Latin titles of forty-five have been changed more or less.

Among the more important articles that have been added are acetylsalicylic acid, arsphenamin, barbital, epinephrin, procain hydrochlorid, neo-arsphenamin, quinidin sulphate, and mild and strong silver proteinates. It would hardly be correct to speak of any of the more important articles that have been dismissed, for, obviously, those that were dismissed are deemed of least importance.

I do not believe that any progressive physician will be embarrassed in his efforts to uphold the Pharmacopeia by the loss of any articles that have been dropped. A few may protest on discovering that a familiar drug is no longer official, but a careful survey of the list of official substances will show that the Pharmacopeia contains better drugs of every class than those that were dropped. Diacetylmorphin (or heroin) has therapeutic value, but Congress has forbidden its manufacture in this country, and it is the consensus of opinion that it is fully replaced by morphin and codein, and a great many believe that heroin has done more harm than good. Morphin and strychnin, the alkaloidal bases, were dropped because these alkaloids are almost invariably used in the form of one or another of their salts. I do not believe that one drug or preparation that was dropped deserves a place in the Pharmacopeia.

One may be surprised to discover tincture of opium among the list of preparations that have been dropped. This is little more than a change in the title, however, for the tincture of deodorized opium, so called, of the ninth revision is admitted in place of the tincture that was formerly official. The actions and dosage are identical with those of the tincture that has been dropped.

The Committee of Revision was greatly concerned with the question whether whisky and brandy should be admitted. After long discussion they were dropped from the ninth revision, and after an equally protracted consideration they were admitted to the tenth. Their admission was almost uniformly favored by those members of the subcommittee on scope who are in practice, and almost uniformly disapproved by the laboratory workers. The significance of this is left to individual consideration.

There are comparatively few important changes in the strengths of official preparations which retain their former titles. Among the more important is that of the ointment of yellow mercuric oxid. It was formerly employed extensively for the destruction of pediculi, whereas it is now used mainly in ophthalmic practice. The ointment formerly contained 10 per cent. of yellow mercuric oxid, but that of the forthcoming revision will contain only 1 per cent. This serves to illustrate the necessity for an acquaintance with the Pharmacopeia on the part of the physician.

Fragmentary as this discussion is, it will serve, I trust, to call attention to the necessity of a better acquaintance on the part of physicians with the Pharmacopeia, and to some of the ways in which it is of value to them.

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ABSTRACT OF DISCUSSION

DR. E. FULLERTON COOK, Philadelphia: The essential phases of the new revision have been covered thoroughly by Dr. Hatcher. Possibly, however, a word about the national status of the Pharmacopeia might be interesting. It is different from all other pharmacopeias in that an incorporated body with no direct governmental affiliation controls and revises it. When the new book appears decennially, it is adopted by the government of the United States as the official standard for medicines. The independent position of the Pharmacopeia has, however, certain advantages. Through its nongovernmental status, it is able to bring into the revision many interests. The Surgeon Generals of the Army, the Navy and the Public Health Service, through the Hygienic Laboratory, the Bureau of Chemistry of the Agricultural Department, the Bureau of Standards, and many national and state medical and pharmaceutical associations and scientific workers in university and private laboratories, are thus brought into the revision work. One striking feature which Dr. Hatcher mentioned and which should be stressed is the fact that the scope of the new Pharmacopeia, the Tenth Revision, has been determined by the physician members of the committee, so that the book should have the unqualified support of the medical profession. Another feature of importance in the new Pharmacopeia is the effort that has been made to insure uniformity of therapeutic action. Rubrics, or a definite degree of purity or activity, with tests and assay methods have been established for chemicals, drugs and preparations whenever these have been practicable. To insure greater uniformity in biologically standardized products, the Bureau of Chemistry has offered to prepare and distribute free to pharmaceutical manufacturers the U. S. P. physiologic standards for digitalis and the digitalis group of drugs, epinephrin, pituitary extract, ergot and cannabis. With all these safeguards provided for pharmacopeial chemicals, drugs and preparations, and with their quality enforced by the Food and Drugs Act, physicians should have confidence in U. S. P. products and insist on having them when prescribing. The Health Committee of the League of Nations is also interested in the establishment of bio-assay standards and is holding a conference this summer to discuss this question. Our new national standards should have an important influence on those to be adopted internationally. The U. S. Pharmacopeia has also been extensively used in the Spanish-American countries. For twenty years a Spanish edition has been issued and is official in Cuba. The U. S. P. translation is now under way through the cooperation of the University of Havana and should be available early in 1926. The exact date when the new Pharmocopeia will be available is not yet known, but the board of trustees has announced that it will become official in the United States, Jan. 1, 1926. A few years ago the Pharmacopeia of the United States was translated into Chinese, and is now available in China for those who have been trained in modern medicine. This was made possible largely through the cooperation of St. Johns University of Shanghai, working under Mr. Carl Crow.

DR. H. C. WOOD, Philadelphia: I do not think that the medical profession realizes the amount of medical investigation represented in this book. It understands probably the necessity of considerable experimental work on the part of the chemist and the pharmacist in modifying the formulas; but the amount of therapeutic and pharmacologic research that enters into the make-up of the Pharmacopeia is known to the majority of the medical profession. I might, perhaps, refer to one or two specific instances. The Committee on Ointments wanted to modify the formula for the well known zinc oxid ointment, and the Therapeutic Committee, of which Dr. Sollmann was chairman, made an elaborate study which involved communication with nearly all the prominent dermatologists of the country as to which ointment base was preferable. Another very interesting point brought out concerns the activity of arsenic. Some may have seen the paper of Dr. Schultz in which he showed that the absorption and therefore the therapeutic activity and toxicity of arsenic depended largely on the fineness of the powder, and in view of this work the Pharmacopeia Revision Committee has put a limit on the fineness of arsenic. In the future, it will probably be found that better results are obtained from the arsenic that henceforth will be official than were obtained in the past. I could go on and multiply instances of this sort which have involved very important pharmacologic research in improving the Pharmacopeia. There is one other point that I should like to emphasize. Dr. Hatcher mentioned it, but I think that it cannot be overemphasized, and that is the importance of the use of official names. Manufacturers who sell their products under trade names are in no way bound to furnish products of standard purity; they modify their formulas at will, sometimes very considerably. These may have greater or lesser amounts of impurities, and whenever one orders a product by a proprietary name, one has no guarantee of the quality of drugs or even of the kind of drugs that one's patient is going to receive, except the honesty of the manufacturer. On the other hand, when a drug is ordered by an official name, the druggist must dispense a drug that corresponds to the standards laid down in the Pharmacopeia, or he is liable to prosecution by the federal government, and, in nearly every state in the Union, also by the state authorities.

Plan of Organization of County Health Department.—In a county in which the largest city does not exceed 50,000 population it is usually desirable in the interest of efficiency and economy to form a combined county and city health department under the administration of one health officer. Even where local conditions preclude such a combination, the county health officer should have general advisory authority over all health work in the county. Every county health officer should be required to observe and enforce all state and local health laws, ordinances and regulations throughout his jurisdiction.—Parran, Thomas, Jr.: *Pub. Health Rep.* **40**:984 (May 15) 1925.

ELECTROCOAGULATION AND RADIATION THERAPY

IN MALIGNANT DISEASE OF THE EAR, NOSE AND THROAT *

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Electrocoagulation in the treatment of malignant disease of the ear, nose or throat, from its nature, will have only a very limited field of application.

ELECTROCOAGULATION

1. Electrocoagulation consists in the destruction of the disease by coagulation of the tissues. The heat is caused by the resistance in the tissues to the flow of the high frequency electricity.

2. It differs from the destruction by cautery; it is not a transmitted heat, but is heat generated in the tissues and extends to a greater depth than that of the cautery.

3. It destroys all kinds of tissue in its path, and, therefore, cannot be used where blood vessels, nerves, bone or other essential tissues must be preserved.

4. It is a painful procedure and must be used with either local or general anesthesia.

5. If the area to be destroyed is supplied by large blood vessels, these arteries must be ligated in advance for fear of a secondary hemorrhage, when the slough separates.

6. There is always a sloughing process which will continue for several weeks or months, until all the dead tissue has been thrown off.

7. If bone has been destroyed, it will suppurate, and generally separate as a sequestrum.

8. Electrocoagulation can be used wherever the cautery can be applied and often also in very small areas where only a single wire can be introduced.

9. It must be used under the guidance of the eye, and much skill is required in order that the tissue may be destroyed to the proper depth.

10. Tissue can be destroyed by plunging the needle to any depth, but this demands skill, experience and an accurate knowledge of anatomy.

RADIATION

Radiation, on the other hand, has been used extensively with good results. Radiation can be used to advantage preceding operation, following operation or independent of operation, and should always be used in conjunction with electrocoagulation.

Radium is preferable to roentgen rays when it can be brought into contact with the malignant disease, or safely inserted into the lesion sufficient to irradiate evenly all of the malignant tissue and for a sufficient period of time to destroy all malignant cells.

The roentgen rays, on the other hand, are preferable when the malignant disease lies more than 2 cm. in depth, or when the malignant disease lies beyond healthy tissue which must be preserved. Generally, the two forms of radiation can be combined to advantage, but rarely should they be directed through the same surface. The laws governing the values of each form of radiation must be kept in mind constantly.

In the use of either of these forms of radiation, it is our custom to bring the radiation in the diseased area within a few days or a week to 100 per cent. of an erythema dose (saturation point), by daily treatments, and then keep it at this "saturation point" by subsequent fractional dosage, for a period of from ten to fourteen days. I have described this saturation method in more detail in another paper.[1] No positive rules can be laid down that are applicable in all cases, except that one first of all must consider the general condition of the patient, and the preservation of the essential tissues and organs. All radiation must be carefully measured, and the depth values and cumulative effects carefully calculated. Otherwise there will be insufficient radiation, and the treatment will fail; or there will be an excessive effect, and damaging results will follow.

MALIGNANT DISEASE OF THE EAR

Epithelioma of the auricle, if treated while it is confined to the skin, may be treated, as is any skin cancer, by electrodesiccation and radium, or roentgen rays, and practically all should get well. If the disease has extended into the cartilage, radiation alone will usually fail; but if radiation is associated with thorough electrocoagulation, cure should follow, provided the disease has not extended into the bone.

Primary malignant disease in the middle ear is rare. Junod [2] reports only six cases in 45,000 ear patients at the Basel clinic. Furstenberg,[3] among 40,000 admissions to the department of otology, University of Michigan Hospital, found two cases of primary malignancy of the middle ear, one hemangiosarcoma and one adenocarcinoma. The latter was successfully operated on, followed by irradiation, and the patient was well four and a half years later. In 20,000 otologic cases, Bezold [4] found four otitic tumors, one of the middle ear and three of the external ear. Parrish [5] has reviewed the literature and finds more than 100 cases, practically all squamous cell carcinoma. He reports a case in which he did a radical mastoid operation, the mastoid being found sclerosed and the antrum small. The microscopic diagnosis was squamous cell adenocarcinoma. Roentgen rays and radium were used in massive doses, but they seemed only to stimulate the growth, not to reduce it.

The following case illustrates a combination of the foregoing methods that may be helpful:

G. B., a man, aged 58, was referred to me by Dr. Ralph D. Murphy of St. Petersburg, Fla., March 26, 1924, for treatment of a carcinoma of the inner portion of the floor of the external auditory canal. A section removed by Dr. Murphy, and examined by Drs. Bunce and Landham of Atlanta, Ga., showed squamous cell carcinoma. Symptoms had extended over a period of two years. Pains were described by the patient as being "terrific." Dr. James A. Babbitt found "a punched out necrotic area on the floor, occupying about the middle centimeter of the canal, extending out on the edge of the posterior wall, and a little increased thickening on the anterior wall."

We applied radium in the canal, 50 mg., filtered by 0.5 mm. of silver, 1 mm. of brass and 1 mm. of rubber, for one hour, March 26; and 25 mg. for two hours, March 27; April 10, April 24, May 15, June 16, June 25, September 8, each one hour; October 6, three hours, and Feb. 9, 1925, one hour. High voltage roentgen rays were applied, April 10 and 24, 1924, for a full erythema dose.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Pfahler, G. E.: The Saturation Method of Radiotherapy in Deep Seated Malignant Disease, Proceedings of the International Congress of Radiology, London, July 1-4, 1925, Brit. J. Radiol.
2. Junod, A.: Primary Carcinoma of the Middle Ear, Schweiz. med. Wchnschr. **52**: 510 (May 25) 1922; abstr., J. A. M. A. **79**: 413 (July 29) 1922.
3. Furstenberg, A. C.: Primary Adenocarcinoma of the Middle Ear and Mastoid, Ann. Otol. Rhinol. & Laryngol. **33**: 677 (Sept.) 1924.
4. Bezold: Ueber das Carcinoma des Ohres, Ztschr. f. Ohrenh. **33**: 152, 1918.
5. Parrish, R. E.: Carcinoma of the Ear, Mil. Surgeon **55**: 43 (July 1) 1924.

Oct. 6, 1924, the evidence of disease had not completely disappeared from the floor of the canal. After consultation with Dr. Babbitt, I destroyed this area by electrocoagulation, and removed the dead bone by means of a dental burr.

The patient had shown improvement from the beginning, both in appearance and in relief from pain. During a period of about six months, he seemed to be free from disease, but, April 8, he returned complaining of shooting pains, during a week, sufficient to awake him at night. I found evidence of disease at a new area, in the region of the upper anterior wall near the drum. I applied 25 mg. of radium packed against this area for two hours and cross fired on this area with high voltage roentgen rays during four days, sufficient to keep a saturation value during a week.

The patient's physical condition would not have permitted an extensive radical operation.

The treatment outlined above has certainly given striking relief, and shows how radium, roentgen rays, and electrocoagulation can be combined even in this type of case.

MALIGNANT DISEASE OF THE NOSE

The epitheliomas that involve the skin over the nose can, I believe, all be cured, if treated by electrocoagulation, or thoroughly by irradiation, before they have invaded the cartilage, bone or ethmoid cells. The epitheliomas that originate in the mucous membrane of the nose, I believe, are best treated by radium, locally applied, sufficient to destroy the disease and to turn the surrounding mucous membrane white. This will require about 1,000 mg. hours of radiation and should be distributed over a period of about ten days. Only rarely can electrocoagulation be used to advantage.

The sarcomas and angiosarcomas, we do not treat by electrocoagulation, but by a combination of radium in the nostril and nasopharynx, and by cross firing with high voltage roentgen rays. One must carefully measure the depth radiation values, bring the radiation to the erythema dose value as soon as possible, and then keep it at this point for from one to two weeks, according to the saturation method referred to above.

Carcinoma and sarcoma of the antrum, like malignant disease anywhere, should be treated according to the special conditions present in the individual case. This has been emphasized by Stevens,[6] who reminds us that New selected for treatment only eighteen of thirty-three patients with malignant disease of the antrum who had applied to the Mayo Clinic during a period of two and one-half years. Especially must the form of treatment be modified, when the malignant disease of the maxillary sinus is an extension from the nostril, the palate or the alveolar process. The origin of the disease and its extent must be determined by means of all possible clinical examinations, but especially by means of a careful roentgen-ray study.

If a diagnosis can be made without an operation or removal of a section, I believe, it is better. Even if there were no danger of spreading the disease, such an operation surely interferes with the treatment, by increasing the tenderness and swelling in the neighborhood of the operation. When a diagnosis of malignant disease in the antrum has been made, gamma radiation from radium should be applied in the roof of the mouth, the nostril and the nasopharynx. There should be cross firing with high voltage roentgen rays anteriorly, laterally and from the opposite side, bringing the radiation in the entire area to the erythma dose as soon as possible, and keeping it at this saturation point for from ten to fourteen days. There will likely be marked improvement and perhaps disappearance of the disease at the end of two months. When the improvement has reached a standstill and there is still evidence of disease, electrocoagulation may be used, as illustrated in the following case:

I. S., a man, aged 60, who was referred to me for treatment by Dr. W. B. Fetterman, April 2, 1924, with a carcinoma filling the left antrum, which bulged anteriorly, laterally, and into the roof of the mouth, showed improvement under treatment, but still suffered from pain. November 11, Dr. Francis Grant, at my request, injected the fifth nerve with alcohol. This gave little relief. In December, Dr. Grant ligated the external carotid and resected the fifth nerve near the ganglion, under ether anesthesia. Then, without further anesthesia, I excised most of the disease from the antrum through the external wall by means of the radiotherm, and then destroyed all macroscopic disease by means of electrocoagulation. Two 25 mg. capsules of radium in 0.5 mm. of silver, 1 mm. of brass and 1 cm. of gauze were inserted in the antrum for sixteen hours. Microscopic examination by Dr. Eugene Case showed carcinoma.

Since this time the patient has had a recurrence near the anterior border of the inner wall, and one at the upper outer border. Both recurrences were destroyed with electrocoagulation, and radium was applied. For this destruction no local or general anesthesia were required, and the patient suffered no pain. The outcome of this case cannot be told; but his comfort and general conditions have certainly improved, and he is working daily as a salesman.

THE THROAT

Fibromas of the nasopharynx are best treated by radiation as recommended by New and Figi,[7] who has made a report on thirty-two patients treated in the Mayo Clinic from 1910 to 1923. Of these thirty-two patients, twenty-three had been operated on from one to twelve times before coming to the clinic. The fibromas are described as microscopically benign and clinically malignant. From 1915 to Jan. 1, 1924, twenty-three out of twenty-four patients were treated by radium. New and Figi say: "Radium is the treatment of choice for fibromas of the nasopharynx. With its use the usual operative mortality in these cases is eliminated. In most of our cases the tumor cleared up entirely, and in the others it was held in check during its period of activity." A recurrent case of this disease treated successfully four years ago has been reported in detail by Dr. Benjamin Parrish and myself.[8]

In my opinion, electrocoagulation has no place in the treatment of sarcoma of the nasopharynx. It is not practical to destroy all the disease, and there is great danger from secondary hemorrhage. These sarcomas yield very well to radiation, and with no great inconvenience, suffering or distress on the part of the patient. The gamma rays should be applied to the surfaces of the pharynx, postnasal space and tonsils, and high voltage roentgen rays should be applied externally. Even roentgen rays filtered through only 6 mm. of aluminum have produced brilliant results. New[9] finds that surgery and the cautery are of little use in high grades of malignancy of the nasopharynx, and recommends irradiation.

Carcinoma of the tonsil is best treated by irradiation in any stage, but the earlier the better. When a diagnosis can be made, I believe that an operation should be

6. Stevens, R. H.: Malignant Growths of the Paranasal Sinuses Treated by Irradiation, Electrocoagulation and Other Methods, Am. J. Roentgenol. **11**: 532 (June) 1924.

7. New, G. B., and Figi, F. A.: Treatment of Fibromas of the Nasopharynx, Am. J. Roentgenol. **12**: 340 (Oct.) 1924.

8. Parris, B. D., and Pfahler, G. E.: A Nasal Fibroma, Surgical Removal; Recurrence; Treated by Radiation, Ann. Otol., Rhinol. & Laryngol. **34**: 219 (March) 1925.

9. New, G. B.: The Treatment of Malignant Tumors of the Pharynx and Nasopharynx, Surg., Gynec. & Obst. **40**: 177 (Feb.) 1925.

avoided. Brilliant results may be expected, if treated early. When the disease has extended sufficiently to produce palpable disease in the lymph nodes, we may expect palliative results, but probably not cure. Grier [10] advises, when the patient is first seen, that the cervical region on the affected side should be treated by high voltage roentgen rays, a dose being given that will produce a well defined erythema, and that radium needles or emanation tubes should be inserted into and around the tumor, after about three days. Our best results have been obtained by local surface application of gamma rays, combined with external treatment with high voltage roentgen rays, the radiation being carried to the erythema dose internally and externally, and then kept at this saturation point for from ten to fourteen days. We have derived much help, since 1921, from the use of the tonsil clamp, slightly modified so as to hold the radium on the inside (where a sponge is ordinarily applied). McKenzie [11] has made a rather enthusiastic report from the use of electrocoagulation in these cases, but I do not share this enthusiasm.

CARCINOMA OF THE LARYNX

I have had no experience with electrocoagulation in malignant disease of the larynx, but it would seem theoretically to be a valuable method, so long as conditions will permit complete local destruction of all the diseased tissue plus an eighth of an inch of the surrounding healthy tissue. It should be useful wherever the ordinary cautery is useful, but must be used by direct vision, either by direct laryngoscopy or by laryngofissure, as has been practiced by Sargon,[12] who combines excision with irradiation. The only record that I find in literature of electrocoagulation in carcinoma of the larynx is that by Novak,[13] who says that he has had no untoward results in a series of 200 cases. He approaches the larynx by suspension laryngoscopy. Pancoast [14] says: "We freely acknowledge the superiority of improved surgical technic in operable cases. Radiation may be employed with care as a palliative measure with tracheotomy in inoperable cases, and possibly as a postoperative measure." In a discussion of Pancoast's paper, however, Regaud said:

> My colleagues and myself have treated twelve cases of carcinoma of the larynx with roentgen radiation alone, from 1921 to 1923; eight of them are clinically well at the present time (June, 1924); four resisted treatment, two with necrosis of the larynx; one was operated on, and one died. We have employed the following technic: 2 mm. zinc filter, 45 cm. spark gap, between points, repeating the application daily for three weeks, the total dose being an erythema dose after three weeks, sufficient to cause desquamation.

Regaud's technic corresponds in effect to what I have described as the "saturation method of roentgenotherapy." All Regaud's cases were checked by biopsy.

In a previous paper,[15] I recommended the introduction of radium needles through the thyrohyoid membrane, but in the most brilliant case there was a recurrence after three years, and I have not attempted this procedure since. Recently we have had such brilliant results in a very advanced case of totally inoperable carcinoma of the larynx, referred by Dr. Ralph Butler, as a result of daily radium and roentgen-ray treatment, according to the saturation method, given over a period of three weeks, that I am very much encouraged again. The larynx, especially the arytenoid cartilage, is especially sensitive to radiation, and, therefore, one cannot use massive or excessive dosage, or edema of the larynx, and strangulation may result.

1321 Spruce Street.

10. Grier, G. W.: Deep Roentgen and Radium Therapy in Carcinoma of the Tonsil, Am. J. Roentgenol. **11**: 537 (June) 1924.
11. McKenzie, D.: Diathermy in the Removal and Treatment of Pharyngeal Cancer, Brit. J. Radiol. **30**: 9 (Jan.) 1925.
12. Sargon: Malignant Neoplasms of the Pharynx and Larynx—Surgery, Radium and Radiotherapy, Arch. internat. de laryngol. **2**:972 (Nov.) 1923.
13. Novak, F. J., Jr.: Carcinoma of the Larynx, Illinois M. J. **44**: 338 (Nov.) 1923.
14. Pancoast, H. K.: Observations on the Radiation Treatment of Carcinoma of the Larynx, Am. J. Roentgenol. **12**: 217 (Sept.) 1924.
15. Pfahler, G. E.: The Treatment of Carcinoma of the Larynx by the Insertion of Radium Needles Through the Thyrohyoid Membrane.

ABSTRACT OF DISCUSSION

DR. J. DOUGLAS MORGAN, Philadelphia: In the treatment of malignant disease we have a choice of several methods—surgery, electrothermy radium and the roentgen ray. In a particular case any one of these methods may suffice, but in many cases a combination of one or more methods is essential for the best results. No case of malignant disease in which metastasis is likely should be treated by surgery or by electrothermy alone. Irradiation should be used, sometimes as a preoperative and certainly as a postoperative measure, since it does reduce the danger of metastasis. Many of these basal cell conditions have been treated successfully by surgery alone, but often at the expense of considerable deformity and surgical shock. The electrothermic methods, to a large extent, avoid these difficulties. One can be more conservative in the treatment by electrodesiccation or coagulation, because the heat produced in the tissues penetrates beyond the actual portion removed, and destroys any disease in the tissues beyond, therefore lessening, to a considerable extent, the possibility of recurrence. Then, too, such cases in this region, which are totally inoperable in the ordinary way, can be dealt with successfully by the coagulation method, because of its greater conservation of tissue and because one can reach parts otherwise inaccessible. Dr. Pfahler has mentioned some of the advantages of these methods, but has wisely cautioned that these demand skill, experience and an accurate knowledge of anatomy. Electrodesiccation is of particular value for small neoplasms when cosmetic results are desirable. Owing to the fact that desiccation does not produce tissue destruction, merely dehydration, there is practically no fibrous tissue formed, and, therefore, in these regions, in which good cosmetic results are imperative, it is of greater value than the coagulation method, in which the intensity of the heat is so much greater that destruction of tissue occurs with more scar tissue as a result. As Dr. Pfahler remarked, malignant disease of the middle ear is rare. This is fortunate, for it is certainly a most difficult condition to treat. Epithelium, cartilage and bone are directly or indirectly involved, and the only possible hope of relief in these conditions is the combined use of electrothermy with radium and the roentgen ray. The intensity of the treatment will depend on the condition present. Unfortunately, nearly all these cases are attended with such intense suffering that it can be relieved only by morphin, and thus both moral and physical strength are soon undermined. In the treatment of the skin over the nose, our experience indicates that the desiccation method is preferable to coagulation, on account of the better cosmetic results, and also better than irradiation, because there is less danger of recurrence. If necessary, the lesion can be treated several times by this method, whereas with irradiation one is limited in the number of applications possible. Cases involving the mucous membrane, when accessible, must be treated by desiccation, but many will require radium treatment in addition, both locally and over the adjacent lymphatics. We have had a large series of cases of antrum involvement. If the roof of the mouth is involved, the involved portion can be coagulated, and following this, the contents of the antrum; if the eye is involved, exenteration can be done and the antrum entered through the floor of the orbit, or, if necessary, we can go in from the front after a flap has been made of the tissues of the cheek.

DR. JOSEPH C. BECK, Chicago: Dr. Pfahler is fortunate in that he is not only using irradiation or electrocoagulation, but also is able to do any necessary operative work in this

connection. This means of treatment is comparatively new to the laryngologist. I have associated with me Dr. Orndoff. We work together in the treatment of malignancy and we have had some interesting experiences. I will not say we have had excellent results, but they are sufficiently good to warrant treating quite a number of malignant cases. I am sorry that Dr. Pfahler did not mention carcinoma of the larynx. Where there are small areas of carcinoma of the larynx, laryngectomies are done for fear of dissemination of the process by laryngotomy, and we are warned against implantation, which does happen; whereas the experience of men in this line of work who are able to apply electrocoagulation is that the carcinoma is destroyed beyond a doubt. This is, therefore, an excellent method, one that we should learn to use. A very valuable field for this method is in the nonmalignant cases; for instance, when there are stumps of tonsils because a thorough tonsillectomy was not done. If the tissue becomes infected, it can be handled by electrocoagulation. Again, in cases in which a perfect tonsillectomy was done but a compensatory hypertrophy of the plica or other lymphoid tissue, often mistaken for the remains of a tonsil, develops, electrocoagulation is indicated, especially if this tissue has repeated attacks of inflammation.

DR. G. E. PFAHLER, Philadelphia: I do not do surgery. I do the electrocoagulation and clean away the tissue and do all that sort of thing, but I am not in any sense posing as a surgeon doing an operation.

RELATION OF CALCIUM CONTENT OF THE SPINAL FLUID TO POSTLUMBAR PUNCTURE HEADACHE *

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The problem of postlumbar puncture headache is an exceedingly perplexing one and no solution of it has been offered so far. Theories have been advanced, but they were merely of a speculative nature not substantiated by any pathologic or experimental evidence.

It is commonly known that the amount withdrawn has no bearing on the production or severity of the headache. Nor do the cytologic, serologic or chemical findings in the spinal fluid bear any relation to it. It is significant, however, that, comparatively speaking, only a small percentage of patients suffer from postpuncture headache.

Early in 1923, a paper by Depisch and Richter-Quittner [1] on the etiology of headache attracted our attention. They found that a total lack of calcium in the spinal fluid or the presence of only very small amounts is the cause of headache. They determined the calcium content of spinal fluids of twenty-one patients of various pathologic conditions suffering from headache, and found in seven of the fluids no calcium at all; in one, however, there was 9.56 mg. per hundred cubic centimeters, and in the remainder of the fluids there were only slight amounts. The administration of a calcium salt, they assert, promptly relieved the headache. They also note that a lumbar puncture relieved the patients.

We decided to investigate these findings in relation to postlumbar puncture headache. In looking over the literature on calcium determinations of the spinal fluids in normal and pathologic states we found that the following investigators estimated amounts of calcium in normal fluids as the normal average: Yvon,[2] 11.2 mg. per hundred cubic centimeters; Mestrezat,[3] 9.5 mg.; Kummer and Minkoff,[4] from 5 to 5.2 mg.; Leichner,[5] 5.2 mg., and Depisch and Richter-Quittner, 2.5 mg.

The earliest report on calcium estimation in pathologic fluids is that of Schmidt [6] in 1850, who examined two fluids of hydrocephalus cases and found 15.3 mg. in the adult and 7 mg. in a fetus. Mestrezat [7] found 6.2 mg. in the fluid from a hydrocephalus case drawn post mortem. Halverson and Bergeim [8] estimated an average of 5.1 mg. in twenty-five pathologic fluids, and 6 mg. in one of paralytic dementia. Mann [9] found the calcium content in fluids of twelve epileptic patients and six nonepileptic patients to be between 8 and 9 mg. Weston and Howard's [10] averages were 5.2 mg. in fluids of excited and 5.4 mg. in the depressed types of manic-depressive insanity. Depisch and Richter-Quittner report quantities varying in amount, the highest being 24.62 mg. in one fluid, 1 mg., one with only a trace, and in seven fluids, as mentioned above no trace of calcium. Finally, Critchley and O'Flynn [11] found in 115 pathologic fluids the lowest average to be 5.2 mg. and the highest average, 8 mg., giving a general average for males as 6.24 mg. and for females 6.14 mg. per hundred cubic centimeters. In one case they found a trace of calcium. The last named authors, we find, also went over these findings with relation to the etiology of headache. Of their material examined, seventy were of males, forty-one of females, and in four no sex is mentioned. They do not publish lowest or highest amounts of calcium but state only the averages of the various groups of pathologic conditions examined.

From their observations they conclude that there was no relation between the calcium content of the spinal fluid and the intracranial pressure, cytologic and serologic findings, protein content, the quantity of inorganic constituents or sugar. Nor do they find any relation of the calcium content to headaches.

We have examined 133 fluids and, in order not to influence the results, no particular diets were ordered. All punctures were made in the afternoon. The fluids were absolutely free from blood and tested twenty-four hours after puncture; from 3 to 5 c.c. was used for analysis.

In the determination of the calcium we followed Clark's [12] method by precipitating the salt as oxalate and redissolving it in normal sulphuric acid and titrating with hundredth normal potassium permanganate, calculating as follows:

$$\frac{\text{Number c.c. of hundredth normal } KMnO_4 - (0.05 \times 0.2)}{\text{Number c.c. of spinal fluid used}}$$

= mg. Ca per hundred cubic centimeters of spinal fluid so that each cubic centimeter of potassium permanganate solution would represent 0.2 mg. of calcium.

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* From the Neurological Service and Pathological Laboratory of the Kings County Hospital.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

1. Depisch, F., and Richter-Quittner, M.: Wien. Arch. f. inn. Med. 5: 321 (Jan.) 1923.
2. Yvon: J. de pharm. et chim. **26**: 240, 1877.
3. Mestrezat: Liquide céphalo-rachidien, 1912.
4. Kummer and Minkoff: Compt. rend. hebd. de science et méd. Soc. de biol. de Bordeaux **81**: 864, 1821.
5. Leichner, H.: Deutsch. Arch. f. klin. Med. **141**: 196 (Dec.) 1922.
6. Schmidt: Charakter der epidemischen Cholera, Leipzig, 1850.
7. Mestrezat: J. de pharm. et chim. **29**: 572, 1909.
8. Halverson, J. O., and Bergeim, Olaf: J. Biol. Chem. **29**: 337 (March) 1917.
9. Mann, S. A.: Arch. Neurol. & Psychiat., London **8**: 16, 1922.
10. Weston, P. G., and Howard, M. Q.: The Determination of Sodium, Potassium, Calcium and Magnesium in the Blood and Spinal Fluid of Patients Suffering from Manic-Depressive Insanity, Arch. Neurol. & Psychiat. **8**: 179 (Aug.) 1922.
11. Critchley, M., and O'Flynn, E.: Brain **47**: 337 (Aug.) 1924.
12. Clark, G. W.: J. Biol. Chem. **49**: 487 (Dec.) 1921.

Summarizing our results, we find (Table 3) that in fifty-nine normal fluids the average calcium content was 5.8 mg. per hundred cubic centimeters, coming near to Kummer and Minkoff's and Leichner's findings. In estimating the average calcium in the male and female patients of the total 133 fluids examined, we also find, as did Critchley and O'Flynn, a lower amount in the female than in the male, and very much near their figures; namely, 5.94 mg. for the male and 5.56 mg. for the female. Our lowest calcium content (Table 1) was 1.2 mg. and the highest, 9.2 mg., with a total average for all the 133 fluids of 5.52 mg.

In comparing the low, high and average calcium content of the spinal fluids of the various pathologic states (Table 1), it is noteworthy that in cases of chorea we have an average of 4 mg., far below the average normal and in brain neoplasms and abscess far above the average normal; namely, 6.71 mg. Of course, one cannot draw definite conclusions from so few cases recorded, but these findings seem sufficiently significant to merit further investigation. In all other pathologic conditions, the variations of the calcium content are so small as to be of no particular significance.

TABLE 1.—*Calcium Content of Spinal Fluids in Various Pathologic States*

Pathologic State	Number of Cases	Calcium Content in Milligrams per 100 C.c.		
		Lowest	Highest	Average
Epidemic encephalitis, acute and chronic	21	2.4	9.2	5.76
Tabes dorsalis	4	2.5	5.9	4.92
Paralytic dementia	5	4.6	6.7	5.66
Cerebrospinal syphilis	17	5.0	8.0	5.80
Brain neoplasm	6	5.4	8.0	6.71
Brain abscess	1	8.3	...	....
Cerebral hemorrhage	18	5.2	7.0	6.00
Cerebral thrombosis	7	2.0	6.5	5.50
Paralysis agitans	3	5.2	6.3	5.60
Cerebral arteriosclerosis	6	5.4	6.5	5.91
Tuberculous meningitis	1	6.3	...	....
Acute alcoholism	5	6.3	6.4	6.35
Chorea	6	1.2	5.4	4.00
Cord neoplasm	3	5.4	6.5	5.95
Transverse myelitis	3	5.0	6.9	5.87
Epilepsy	3	5.1	6.0	5.47
Psychoses	2	5.6	5.7	5.65
Neuroses	6	4.8	7.8	5.78
Neuritides	3	5.4	6.5	5.95
Cardionephritis	10	5.4	7.0	6.10
Pulmonary tuberculosis	2	5.6	6.8	6.20
Chronic arthritis	1	5.1	...	....
Total	133	1.2	9.2	5.52

TABLE 2.—*Calcium Content of Spinal Fluids According to Wassermann Reaction*

Wassermann Reaction	Number of Cases	Calcium Content in Milligrams per 100 C.c.		
		Lowest	Highest	Average
Positive in blood, negative in fluid	5	4.6	6.5	5.36
Negative in blood, positive in fluid	2	5.7	6.9	6.30
Positive in both	19	5.1	8.0	5.98

Comparing the low, high and average calcium content of fluids in relation to their pathologic chemical, cytologic and serologic aspects, we find (Tables 2 and 3), as did Critchley and O'Flynn, that there is no relation between these abnormal conditions and the calcium content. While we do find at times some deviation from the averages of the normal fluids, they are very insignificant.

This leads us to the consideration of the relation of the calcium content of the spinal fluids of patients who suffered from postlumbar puncture headache. Fourteen of the 133 patients in whom puncture was done suffered postpuncture headache. Comparing the low, high and average amounts of calcium in the fluids of these patients with these of the normal fluids (Table 4), we find that they have a slightly lower amount, 4.1 mg. being the lowest and 5.9 mg. the highest, with an average of 5.31 mg.

TABLE 3.—*Calcium Content of Spinal Fluids with Wassermann Reaction Negative, Globulin Positive*

Other Findings	Number of Cases	Calcium Content in Milligrams per 100 C.c.		
		Lowest	Highest	Average
Marked increase in cells	13	5.0	7.0	5.90
Slight increase in cells	35	2.4	9.2	5.93
Normal fluids	59	4.6	7.8	5.80
Lange positive fluids	42	2.0	9.2	6.00
Total fluids of male patients	91	4.8	9.2	5.94
Total fluids of female patients	42	1.2	8.6	5.56

In only one instance, that of a patient with postencephalitic Parkinson's disease, was the headache most severe, lasting ten days. The calcium content of the fluid was 5.8 mg., which, according to our findings, is normal. Neither the administration of calcium lactate, or acetphenetidin, nor the recumbent posture with the legs elevated offered him any relief. All other patients suffered headache from two to four days.

This series of thirteen patients we have divided into two groups. To eight of them calcium lactate in doses of 0.65 gm. was administered. The headache would disappear within half an hour after the administration, to reappear again within three or four hours. The other group of five patients, as our control, were kept in the recumbent position just as all others and were given acetphenetidin with the same results as those treated with the calcium salt. They also were relieved for a few hours at a time and their headache invariably reappeared until after the second or fourth day, respectively, when they would fully recover.

TABLE 4.—*Calcium Content of Fluids of Patients with Postlumbar Puncture Headache*

Diagnosis	Number of Cases	Calcium Content in Milligrams per 100 C.c.		
		Lowest	Highest	Average
Postencephalitic Parkinson disease	8	4.1	5.9	5.42
Chorea	4	4.6	5.4	4.86
Cord tumor	1	5.5	...	....
Polyneuritis	1	5.4	...	....
Total	14	4.1	5.9	5.31

CONCLUSIONS

1. In no case did we find a total absence of calcium in the spinal fluid.

2. There seems to be no relation between the calcium content and the pathologic condition of the fluid or of the patient, with the possible exception of cases of chorea, brain tumors and abscess, as compared with the findings in the normal fluids.

3. The amount of calcium in spinal fluids of patients suffering from postpuncture headache, while slightly less than the average normal, is not significant in any sense of the cause of headache, since patients with as low amounts as 1.2, 2 and 2.4 mg. per hundred cubic centimeters have not suffered any discomfort after puncture, and in none of these cases was the fluid under pressure and they had no headache before.

4. In the series of cases in which the calcium did temporarily relieve headache, we would in all probability have had the same results with other means, as shown in our control cases.

ABSTRACT OF DISCUSSION

DR. JULIUS GRINKER, Chicago: I cannot understand this sentence which appears in the summary: "However, calcium given by mouth does relieve headache in most instances and acts as a prophylactic." That is inconsistent with what the author has told us. If this drug acted as a prophylactic, he should have had a series of patients with headaches who were not given calcium, as opposed to the series treated with calcium lactate, and the last series should have been free from headaches, while the first should continue to have headache. Another point: The only remedy I have found against the headaches following lumbar puncture is absolute rest in a horizontal posture. The headache of longest duration after puncture in my practice lasted three weeks. No sooner did the patient rise than the headache returned. When the patient resumed a recumbent posture the headache regularly subsided.

DR. IRVING J. SANDS, Brooklyn: Since the publication of Dr. Solomon's paper on the relief of postlumbar puncture headache by the administration of pituitary extract, I have used his method in those cases that presented gross neurologic disorders, in the psychoses, in the psychoneuroses, and in those patients who came for a diagnostic survey. In my opinion, it is an excellent remedy. I cannot recall a single instance in which there was as severe headache as I had noted before I used the drug.

DR. PAUL G. WESTON, Jamestown, N. Y.: The great variation in the amounts of calcium reported interested me more than the relation of calcium to puncture headache. The figures differ so markedly from most published results that one wonders what the explanation is. My own results, while limited to about 500 analyses of spinal fluid and blood, showed a very marked constancy in the amounts not only of calcium but also of magnesium, sodium and potassium. These cases included chorea, brain tumors, encephalitis, various organic nervous diseases and a number from cases in which the nervous system was not involved. The technic used is most important, for even a very slight error in technic may result in variations of 2 or 3 mg. per hundred cubic centimeters of fluid. Every step in the analyses must be controlled carefully. It hardly seems possible that one can go about with so little calcium as 1 mg. per hundred cubic centimeters without serious symptoms. The physiologists showed us long ago that even a slight variation of the salts in blood or spinal fluid is always associated with marked symptoms.

DR. IRVING PARDEE, New York: The question of spinal puncture headache is a serious problem. A patient is told that a spinal puncture amounts to nothing; then he may have to spend a week in bed after it is done. It is trying both for the physician and for the patient. I have found nothing that will relieve a spinal puncture headache, except the recumbent position—and that does always relieve the patient. If the patient will keep his head low, flat on the bed, without pillows, he will not have a headache. Since Dr. Solomon reported the use of pituitary extract and hypertonic solutions in an attempt to combat spinal puncture headache, I have used it in a number of cases, although I do not feel that the pituitary extract really has any therapeutic effect in these cases. There are a number of points in my experience with spinal puncture headache which seem interesting. One of them is that we are more apt to see it in normal persons than in patients who present an abnormal spinal fluid. We very rarely see a patient with any form of neurosyphilis present a spinal puncture headache following removal of fluid. I am quite willing to be enlightened as to why this is so, if any one can tell us. Another thing: Multiple sclerosis almost universally causes spinal puncture headache. Why that is so, I also do not know. The question of calcium, as far as I can see from Dr. Neustaedter's paper, really does not seem to enter into this problem. There was a great deal of variation in these calcium statistics, all kinds of conditions. In the normal subject, there was considerable variation. I do not see that that really is the crux of our problem. Dr. Robert mentioned in one of his papers on spinal puncture headache that it was due to puncturing the dura, and the remaining spinal fluid draining off through that opening. I do not feel that that is really the crux of the problem, because one can take out as much as 80 c.c. from the spinal canal and still have no spinal puncture headache even though the patient may get up immediately afterward.

DR. J. A. MCINTOSH, San Antonio, Texas: I, too, think the recumbent posture is helpful after spinal puncture. The most important thing is to do the puncture with the patient recumbent. I have followed that procedure, and the headaches have been less frequent and less severe than in cases in which the puncture was done while the patient was in a sitting posture.

DR. MARCUS NEUSTAEDTER, New York: In answer to Dr. Grinker, I am sorry to say that the abstract was not shown to me before printing. I did not mean to convey that impression at all, although it was reported in the Vienna paper that as a prophylactic measure the administration of calcium prevents postlumbar puncture headache. With regard to pituitary extract, Dr. Sands reports very wonderful results, and Dr. Pardee reports no results at all. I have not tried it, because I am not in the habit of jumping at things because of the report of one case. I want to see confirmation before I experiment on patients. I read the paper rapidly and as a result omitted to state a few facts. No particular diet was ordered in any case. All fluids were examined within twenty-four hours after puncture, and the amounts used were between 3 and 5 c.c. The fluids were examined according to Clarke's method, by which the salt is precipitated as an oxalate and titrated in 1 per cent. permanganate solution, each cubic centimeter representing 0.2 mg. of calcium per hundred cubic centimeters of spinal fluid. Each determination was made twice, and sometimes three times, and varied very little. We had only three cases of 1.22 and 2.4 mg. per cent. out of the 133. While we do find choked disks in brain tumors, we have brain tumors without choked disks, and because a patient has no choked disk one would not say, "No choked disk, no tumor." I quite agree with the last speaker that there is not much significance to be attached to the relationship between the calcium and the headache. With regard to Dr. Pardee's statement that he believes all postlumbar puncture headaches are relieved by the recumbent posture, I can recollect one patient with multiple sclerosis whom we kept in bed four months without relieving her headache. Nothing gave relief.

THE USE OF ANTIMONY AND POTASSIUM TARTRATE IN TRICHINOSIS

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As yet the active treatment of trichinosis is unsatisfactory. It is realized that the prophylactic measure of complete cooking of pork and sausage is by far the most important method we have of preventing the disease; and yet, even in spite of such a well known measure, trichinosis continues to exist.

A review of the literature reveals that various methods of treatment are offered. In the early recognized cases a thorough evacuation of the gastro-intestinal canal is advised. Glycerin, because of its hygroscopic properties, has been recommended. Serum prepared from animals convalescing from the disease has been recommended (Salzer [1] and Hall and Wigdor [2]). But various observers, including Schwartz,[3] were unable to show the efficacy of this line of attack. Aspidium, santonin and thymol have all been tried with indifferent results. Tyzzer and Honeij [4] attempted to destroy the trichinae by the use of the roentgen ray and radium, but this proved unsatisfactory. Arsphenamin and neo-

1. Salzer, B. F.: A Study of an Epidemic of Fourteen Cases of Trichinosis with Cures by Serum Therapy, J. A. M. A. **67**: 579 (Aug. 19) 1916.
2. Hall, M. C., and Wigdor, Meyer: Experimental Study of Serum Therapy in Trichinosis, Arch. Int. Med. **24**: 601 (Nov.) 1918.
3. Schwartz, Benjamin: Serum Therapy for Trichinosis, J. A. M. A. **69**: 884 (Sept. 15) 1917.
4. Tyzzer, E. E., and Honeij, J. A.: Effects of Radiation on the Development of Trichinella Spiralis, Parasitol. **3**: 43 (Dec.) 1916.

arsphenamin have been tried, but with no definite results. The foregoing methods would be of value only if they destroyed or removed the parasite before it encysted itself in the various muscular tissues of the body.

It was through a suggestion by Dr. Theodore Tieken, formerly on the attending staff of the Cook County Hospital, that antimony and potassium tartrate (tartar emetic) was tried in the case reported here. This case was a very suitable one for the use of the drug, because it was diagnosed during the stage of invasion of the parasites, as shown by the demonstration of the larvae in the blood stream.

While it is realized that absolute conclusions cannot be drawn from one case, yet this report is made to stimulate other men to use this drug, and so prove or disprove its value in cases of trichinosis.

REPORT OF CASE

N. D., a woman, aged 35, Italian, entered the Cook County Hospital, Dec. 19, 1923, in the gynecologic service, with an examining room diagnosis of pelvic peritonitis. The patient could neither understand nor speak English, but later it was learned from relatives that six months previous to her present illness the patient was delivered of an eight months pregnancy by a midwife at the patient's home. There was no instrumentation, and the patient had a normal puerperium. Four days prior to her entrance into the hospital, she began to have slight vaginal bleeding associated with slight backache and lower abdominal pains. These pains were intermittent in character, and at times were sharp and severe and located in the lower abdomen, and were present on her entrance into the hospital. In addition, diarrhea with a slight headache had also been present. On further careful questioning, it was thought that the patient had had some recent vaginal instrumentation because of the bleeding. This, however, was entirely ruled out. No history of eating uncooked pork or sausage could be obtained, and no other members of the family were ill.

The patient was well nourished, breathed rapidly and with difficulty, and was acutely ill. The pulse rate was 122, the temperature, 100.4 F., and respirations, 30. The blood pressure was 95 systolic and 70 diastolic. The cheeks were flushed, the lips dry and parched, and the tongue showed sordes. The chest and heart were normal. The pulse was barely perceptible, running and of poor quality. The breasts were engorged and filled with milk. There was marked tenderness throughout the lower abdomen, but no rigidity or special point of tenderness. Slight costovertebral tenderness was present bilaterally. The labia were covered with blood and gaped widely, and a slight bloody vaginal discharge was present, but no putrid odor. Internal vaginal examination was not made, in view of the fact that the patient was bleeding, and because her general condition indicated a possible pelvic postpuerperal infection. On rectal examination, marked tenderness was present on pressure upward in both directions, but no masses were felt, and no marked tenderness was elicited on movement of the cervix. No knee jerks could be elicited, but the Achilles tendon reflex was present. The urine showed a trace of albumin, but otherwise was normal. The white blood count was 5,400.

At this time a diagnosis was made of either typhoid or postpuerperal sepsis. Blood was drawn for a Wassermann and a Widal test, for blood culture and blood chemical examination.

The next day the temperature fluctuated between 102 and 103.8 F., with respirations from 28 to 36, and the pulse from 96 to 110. The white blood count was 8,150. The patient still complained of abdominal pain, appeared acutely ill, and had involuntary evacuations. On the 21st, the temperature ranged between 99 and 102 F.; the white blood count was 8,700; the red blood count, 5,200,000, and the hemoglobin 90 per cent. The differential count showed: small mononuclears, 3; large mononuclears, 4; polymorphonuclear neutrophils, 79, and eosinophils 14, in 100 cells counted. In view of the marked eosinophilia with diarrhea, abdominal pain and tenderness, with a fluctuating temperature, a diagnosis was then made of trichinosis.

A biopsy was performed on the gastrocnemius, but no trichinae were found. December 22, blood was drawn to see whether the larvae were present in the blood stream. Miss Kaplan, the bacteriologist at the hospital, reported the presence of the larvae of *Trichina spiralis* in the blood stream.

The Wassermann reaction on the blood was negative; the Widal test was negative; the blood culture was sterile, and chemical examination of the blood showed nonprotein nitrogen, 41.80; urea nitrogen, 22.42; creatin, 1.63, and sugar 91.00 mg. per hundred cubic centimeters of blood.

December 24, treatment with antimony and potassium tartate was instituted, and 1 c.c. of a freshly prepared 2 per cent. sterile solution was given intravenously. December 25, 2 c.c. of the 2 per cent. solution was given intravenously. Following this the patient began to feel much better, and her temperature dropped to normal levels. December 26, 3 c.c. of the 2 per cent. solution was given; on this day, the patient developed slight muscular tenderness over the biceps brachii. December 28, 4 c.c. were given. December 29, the patient felt fine; there was no muscular tenderness, and the temperature was normal. December 30, the patient was up and about without any complaints. December 31, the patient was released, and went home feeling well.

COMMENT

In this case, very small doses of antimony and potassium tartrate proved effective. Rules for its administration as given by Rogers,[5] in cases of kala-azar, consist in the giving of from 3 to 4 c.c. intravenously for every 10 pounds (4.5 kg.) of body weight. The solution should be a freshly prepared one of 2 per cent. strength, in distilled water. The injections should be given, as a rule, every second day or even third day, and the dose gradually increased, but never beyond 10 c.c. for every 10 pounds (4.5 kg.) of body weight.

It is thought that the foregoing method of Rogers should prove of value also in cases of trichinosis. As yet, I have not had the opportunity of trying it out. One point should be kept in mind, and that is, that it is best to start with small doses of the drug and then gradually increase the dosage daily or every other day.

In the use of antimony and potassium tartrate intravenously, the method is not free from danger. One has to be careful not to get any of the drug into the surrounding tissues, because it produces intense pain and a tendency to inflammation and necrosis of the tissues.

The maximum effect of the drug is attained before localization of the parasites within the muscles; therefore, in suspicious cases of trichinosis, or in doubtful cases of typhoid, one should early and diligently search for the larvae of *Trichina spiralis* in the blood stream and spinal fluid. If the parasites are not found, and if the case presents an eosinophilia with a fluctuating temperature and gastro-intestinal symptoms, then treatment with antimony and potassium tartrate should be instituted.

104 South Michigan Avenue.

5. Rogers, in Oxford Medicine 5: 883, 1921.

Immunity of Scalp to Leprosy.—We have never yet come across any leprous lesion of the scalp, either as a primary or as a subsequent lesion, though we have met with anesthesia of the scalp due to leprous disease of the supra-orbital nerve. Why the connective tissue of the scalp should not give shelter to the lepra bacillus it is difficult to say, as the adjacent parts, such as the forehead, ears and neck, are frequently the sites of gross leprous lesions. It may be due to the peculiar blood supply, the length of the hair follicles, or the denseness of the fibrous tissue of the superficial parts of the scalp. In the scalp man most nearly resembles the hair-covered lower mammals on which so many attempts to inoculate the lepra bacillus have apparently not resulted in any success. The immunity of the scalp may be due to this reason.—Rogers, Leonard; and Muir, Ernest: Leprosy, New York, William Wood & Co., 1925.

ALLERGIC AND TOXIC PROPERTIES OF LENS PROTEIN *

SANFORD R. GIFFORD, M.D.
OMAHA

I. IMMUNE REACTIONS TO LENS PROTEIN

BY SANFORD R. GIFFORD, M.D., WITH THE ASSISTANCE OF A. A. STEINBERG, M.D.

Since the report of Verhoeff and Lemoine [1] on endophthalmitis phaco-anaphylactica, in 1922, we have been interested in the question of reactions to lens protein, and have performed skin tests in a series of unselected cataract cases in which operation was performed by ourselves, Dr. Harold Gifford and Dr. James M. Patton.

Verhoeff and Lemoine found that twelve patients showing inflammatory reactions after ruptures of the lens capsule all gave positive skin tests with lens protein. Five of the eyes were enucleated and showed a type of inflammation in some ways unique, which they called endophthalmitis phaco-anaphylactica, believing that it was due to previous sensitization to lens protein, the ocular reaction occurring when lens material was absorbed by the aqueous. Of fifty other cases of various kinds, four gave positive skin tests, and two of these, in which cortex was left at operation, developed ocular reactions. The serums of two patients with positive reactions were tested for precipitins to lens protein, but with negative result. After sensitizing guinea-pigs with one subcutaneous injection of lens protein, so that after four weeks they gave a positive skin test, discissions were performed, and four out of seven animals showed marked ocular reactions, with a histologic picture like the endophthalmitis seen in the human cases. With rabbits, results were not so uniform.

A further series of 168 cataract cases was reported by Lemoine and Macdonald.[2] Fourteen positive tests were obtained, or about 8 per cent. Of these, eight patients developed ocular reactions following operation, whereas no ocular reactions occurred in the negative cases. One patient with a 3 + skin test developed severe endophthalmitis, but attempts to immunize him with ascending doses of lens protein were unsuccessful. A focal reaction in the eye followed each injection. Two patients, however, showing positive tests, were immunized in this way, until the skin test was negative, and the operation was performed without undue reaction.

In our series, intradermal tests were made, an emulsion of pig lens being used, made up according to Verhoeff and Lemoine. Powdered lens in 0.03 gm. quantities, tested for sterility, was added to 1 c.c. of sterile salt solution at the time of each test, making a 1:10 solution of whole lens (1:30 dried lens). As a control, 1:100 and 1:1,000 solutions were made from the first solution and used similarly in most tests. When the injection of 1:10 produced only a slight reaction after twenty-four hours, this usually disappeared after forty-eight hours, and was called ±. When it gave a reaction of 2 cm. or more in diameter, the 1:100 injection was always positive and the 1:1,000 usually slightly so. Eighty-seven patients were tested, nearly all of whom had a cataract. Of these, eleven gave positive skin tests, or 12.6 per cent. Six more gave ± tests. Fourteen cases were tested with both pig and human lens. Of these tests, eleven were negative; one was positive with both; one ± with human and + with pig lens, and one — with human and + with pig lens. This is in accordance with Verhoeff and Lemoine's observation that cataractous lens is a less powerful antigen than normal lens. (Hektoen,[3] however, found cataractous lens as potent an antigen as normal lens.) Thinking that the patients who gave positive skin tests would probably show other antibodies to lens protein, we made precipitin tests on the serums of four such patients. Two of these, from patients with positive skin tests and marked postoperative reactions, were negative. Two from patients with positive skin tests but negative ocular reactions gave positive precipitin tests, one in a dilution of 1:5,120 and one at 1:6,400. The serum of one patient with a positive ocular reaction but a negative skin test proved negative for precipitins.

The eyes of all patients were observed for reaction and for the amount of retained cortex. Of the sixteen patients with + or ± tests, six showed more or less marked ocular reactions. In two of these, no retained cortex could be seen, but since the combined expression with capsulotomy was done, a small amount was probably present. In the four others, more or less cortex was present. In one patient, Mrs. J., who gave a markedly positive skin test, the ocular reaction was fairly severe for two weeks after the extraction, but cleared up, giving a vision of 20/30 after discission. Mr. G., who had retinitis pigmentosa, with an immature and probably complicated cataract, gave a positive skin test. A good deal of cortex was left and a rather severe iritis followed, lasting ten days. A discission at that time resulted in a clear pupil, but vision was limited to hand movements, probably due to previous fundus changes. Mr. L. had some retained cortex with a moderately severe reaction lasting three weeks, but clearing up so that the fundus was well seen. Vision was limited to hand movements due to an old chorioretinitis. Mrs. M. was operated on to remove part of the nucleus left at a previous operation, her cataract being very hypermature and shrunken. A rather severe reaction followed, the eye being still congested, with a good deal of membrane when she was last seen five weeks later. The skin was 1 +. Mrs. B. and Mr. M. both gave positive skin tests, with moderate congestion following the operation, though no retained cortex could be seen. Both obtained vision of 20/30 or better.

The reaction in these six cases may well be interpreted as due to their hypersensitiveness to lens protein. Hypopyon or any of the signs usually associated with a severe infection were not present in any of these cases, and probably in no case did the reaction seriously affect the final result. One case, however, seemed to satisfy all the conditions for a proof of endophthalmitis as a result of hypersensitivity to lens protein. It is not included in the series, as the tests were done after the reaction developed.

Mr. M., aged 76, was operated on for hypermature senile cataract of the right eye. The operation was done with a sliding flap and iridectomy, but after the cystotomy, before any attempt at expression was made, vitreous appeared. Owing to several conditions, it was thought best not to extract the lens, but to use repeated discissions later, so the

* From the Department of Ophthalmology, University of Nebraska College of Medicine.

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1. Verhoeff, F. H., and Lemoine, A. N.: Tr. Int. Ophth. Cong., 1922, p. 234.

2. Lemoine, A. N., and Macdonald, A. E.: Arch. Ophth. **53**: 101-118 (March) 1924.

3. Hektoen, Ludvig: J. Infect. Dis. **31**: 72 (July) 1922.

wound was closed with the flap, very little vitreous being lost. A severe reaction followed; the cornea became vascular, and congestion persisted for three weeks when the patient was dismissed. Two months later a skin test with pig lens was 4+ in all dilutions, the area of redness and swelling exceeding 6 cm. in diameter and persisting five days. The ocular reaction had persisted, the iris and cornea being vascular, and not much absorption of cortex had occurred. An attempt was made to desensitize, starting with 0.2 c.c. of 1:20 lens emulsion and increasing to 0.6 c.c. of 1:10. Reactions followed the early injections but not the last two. Milk injections and large doses of sodium salicylate were also given, and the ocular reaction subsided somewhat. While it was realized that the lens should be removed as the irritating factor, it was felt that this would be disastrous, so an attempt was made to cut through the iris and remainder of the lens with a thin cataract knife. The result was doubtful, and an increase in the reaction followed. The patient was dismissed, but kept under observation till his death two months later of pneumonia. Permission to remove the eye was not obtained. If the skin test had been done at first on this patient, he would have received a preliminary course of lens injections, every effort would have been made to remove the lens in its capsule at the first operation, and the outcome might have been different.

Less easy to interpret is the case of Mrs. M., who gave a markedly positive skin test, persisting over seventy-two hours, showed a good deal of retained cortex, but no ocular reaction. This was one of the cases with a positive precipitin test. Mrs. A. also had some cortex left, a ± skin test, but no ocular reaction.

ANIMAL EXPERIMENTS

Attempts were made to confirm the results obtained by Verhoeff and Lemoine with animals sensitized to lens protein and later subjected to discissions. Rabbits were used as, in spite of the greater ease with which the guinea-pig can be sensitized, it was felt that the eye of the latter animal is so small that a discission would be apt to traumatize it sufficiently to cause some reaction, whether it was sensitized or not. Also the serologic tests, which seemed desirable, would be most inconvenient with the guinea-pig.

In five rabbits, 1/24 gm. of pig lens protein per hundred grams of body weight was injected subcutaneously. Four weeks later, skin tests were made and discissions performed. In four the skin tests were negative at this time, and in three of these the discissions caused practically no congestion. One rabbit with a negative skin test showed a rather marked reaction persisting for ten days after discission. A discission made on the other lens, however, caused no reaction. The one rabbit that gave a positive skin test showed a rather marked reaction after discission. Precipitin tests made with the serums of these five rabbits, pig lens being used as the antigen, were negative in all dilutions.

As the skin tests showed no definite evidence of sentitization in most animals, different methods of sensitizing were tried. It was realized that these methods would cause some immunity, but that a stage of sensitization might also occur. Five rabbits were injected intraperitoneally every three days with three to four increasing doses, the first being, in most of them, 1/400 gm. of dried lens protein per hundred grams of body weight. Tests were made from four to six weeks after the first injection, and three animals were found to have positive skin tests. Discissions were done, but in only one animal did any ocular reaction follow, a rather slight one, lasting two days. Precipitin tests on four of these animals were negative. Thus, while some evidence of sensitivity was afforded by skin tests in these animals, they showed no definite ocular sensitization.

In an attempt to produce still greater immunity, nine rabbits were injected according to the technic recommended by Hektoen in producing precipitins. Four intravenous injections were given at three day intervals, the dose being increased from 2 to 6 or 8 c.c. of 10 per cent. lens emulsion. The tests and discission were made about three days after the last injection. Five of these animals had been used from two to four months before for intraperitoneal injections, but most had given negative reactions. Some precipitins were found in the serums of all these rabbits, one being positive in a dilution of 1:10,240, one at 1:1,280, one at 1:640, and the others in lower dilutions. As might have been expected, only one showed a positive skin test. The surprising fact was, however, that five of these animals had fairly marked ocular reactions following discission, persisting from three to ten days. This was unexpected, and is a little hard to reconcile with Verhoeff and Lemoine's view that a positive skin test is the sign of sensitization, and that animals immunized with increasing doses should show no reaction after discission. No definite conclusion can be drawn from it, except that immunity as shown by serologic tests is not incompatible with a severe ocular reaction to retained lens matter. It indicates the complexity of this problem, as of any immunologic problem. The possibility is raised that in an effort to abolish a patient's sensitivity, we may even increase it, as seemed actually to have been done in these animals; but the small number of experiments does not warrant more than a mention of this as a possibility.

In any case, it seems fairly well proved that animals can be sensitized to lens protein, so as to give an increased ocular reaction to absorption of lens matter from the eye.

How from 8 to 12.5 per cent. of human beings become sensitized to lens protein so as to give positive skin tests, when it required such large doses, given intravenously, to sensitize rabbits at all regularly, is another problem. In several patients, to be mentioned later, who had been absorbing hypermature cataracts for years, this did not occur. Nor did it occur in several cases of retained cortex in which the skin test was repeated some time after the operation. It seems probable that enough lens protein is absorbed through eating meat or meat products to sensitize some highly susceptible individuals.

It must be remembered that the organ specificity of lens protein assumed by Verhoeff and Lemoine is not admitted by all immunologists as proved. Recent work by Kodama [4] leaves it open to doubt, and indicates certain group reactions common to lens protein and other proteins of the eye.

Another complication in the problem is the occurrence of ocular reactions to absorbing lens material in persons giving negative skin tests.

II. TOXIC PROPERTIES OF LENS PROTEIN

By S. R. Gifford, M.D.

Verhoeff and his co-workers, in their series, found that no cases with negative skin tests showed any postoperative reaction from retained cortex. The only exception to this was one case of morgagnian cataract, and here the authors believe the reaction was like that from any necrotic tissue. In the present series, eight severe ocular reactions occurred, apparently due to absorption of lens material, in patients whose skin tests were negative. All were absolutely negative, except that of Mrs. H., which showed a faint red area less

4. Kodama, R.: J. Infect. Dis. 30: 418 (April) 1922.

than 1 cm. in diameter around the 1 : 10 injection, which disappeared in forty-eight hours, and was considered negative. Three of these were cases of severe inflammation with rise of tension, in patients with spontaneously absorbing hypermature cataracts. The others occurred following operation.

Mrs. K., aged 80, had been treated for simple glaucoma by Dr. Harold Gifford since 1917, a trephining having been done in the right eye in 1918, which was successful in controlling tension. Cataracts developed, and in 1922 an attempt was made to extract the right lens, now considerably shrunken and adherent to the iris. Only a small amount of cortex was expressed, and, as vitreous presented, the operation was discontinued. Some attacks of pain and congestion followed, and the tension was raised at times. An iridectomy was done three months later, but the attacks of congestion continued. In 1924, as much as possible of the lens was extracted with the loop and a hook through an incision below. The nucleus was broken up and probably some fragments remained. No vitreous was lost. The eye continued to be irritated and congested, and two months later showed signs of shrinking, with vision of light perception only. Skin tests made before the operation were negative, and a repetition of the test two weeks later was also negative in all dilutions.

Mr. P. presents an instance of glaucoma during spontaneous absorption of a hypermature cataract. Tension was 70 Schiötz, subsiding after paracentesis, and permitting a view of a small nucleus in the chamber angle. Attempt to remove this was abandoned on account of fluid vitreous. After a rather severe postoperative inflammation, the eye became quiet, and vision with a cataract lens was 20/70.

The case of Mrs. C. was very similar to the preceding, but more severe in its course. When first seen, tension in the right eye was 60 and vision was light perception only. A hypermature cataract, evidently disintegrating, was present, and the eye was much congested. Three paracenteses were performed, and six hours after the last one, the cataract was removed by combined expression with a sliding flap. Pain and congestion continued severe after the operation, and as the eye had no light projection, it was enucleated. Sections of the eye showed a fairly severe infiltration of the iris, ciliary body and limbus, chiefly with mononuclear cells. No cortex was left, and the capsule contained some blood and leukocytes. The vessels of the choroid and ciliary body were much engorged. Precipitates were present on Descemet's membrane. The choroid was detached from the sclera by fibrinous fluid. The chamber angle was fairly well open.

Mr. H. had severe reactions following operations on each eye, clearing up under treatment, but recurring several times for a year after the first operation, and nine months after the second. Infected dental roots probably played a part in the later recurrences, during which vision, which was 20/40 and 20/30 after the operation, was reduced to 10/200 and 20/200. Some cortex was left, however, after each operation, and it was considered the primary cause of the reactions.

Mr. F., with a small amount of retained cortex after operation showed a fairly severe reaction, with marked congestion persisting for two weeks, but obtained vision of 20/20. A later operation on the second eye caused no marked reaction.

Mrs. H. had a very severe iridocyclitis following her operation, apparently due to a moderate amount of retained cortex. Pain and congestion persisted for more than two months, but finally cleared up, leaving numerous vitreous opacities. Vision of 20/40 was obtained.

In the case of Mr. C. the ocular reaction was less marked than that of the others in this group, but still considerable enough to be noted as unusual. Some cortex was left.

Mrs. McK., presenting a high myopia with immature cataracts, developed very severe reactions, with extreme pain and congestion, following a preliminary discission and a corneal expression, at which part of the nucleus was left. The congestion subsided only when the fragment of nucleus was absorbed. She also developed a complicating epithelial dystrophy, which reduced vision to 20/70 because of corneal opacities. It is questionable whether this was caused by the trauma or the retained lens matter, but it subsided also when the lens matter was absorbed.

As stated above, skin tests made in all these patients were negative. Since the reaction in these eight cases was not due to a special sensitivity of the patients to lens proteins, an attempt was made to discover whether the lens material itself possessed toxic properties which would effect nonsensitized individuals.

The nuclear material from Mrs. K.'s eye was emulsified in enough physiologic sodium chlorid solution to give approximately 0.10 per cent. suspension. This was tested for sterility, and 2 minims was injected into the anterior chamber of four rabbits. In the left anterior chamber of each animal was injected a similar amount of emulsion of an ordinary cataractous lens, which had caused no reaction. Two of the animals had been given three intraperitoneal injections of pig lens more than four weeks before, but gave negative skin tests. The other two animals had not been treated except by skin tests, which were negative. The injections were made with a fine needle introduced subconjunctivally, 3 drops of aqueous being allowed to flow from the needle and then 2 minims injected, the needle being left in place for several seconds and then withdrawn quickly, so that as little as possible flowed out. Though there was slight variation in the amount that remained in the chamber, every effort was made to make this as uniform as possible. Considerable reaction occurred in all the eyes injected, lasting from four to five days. In one animal the reaction was more marked in the right eye, while in three it was more marked in the left eye (ordinary cataractous lens). As it happened, the two nonsensitized animals showed the severest reactions, one eye showing considerable persistent corneal opacity, and one other a very cloudy aqueous during the reaction. Skin tests, made with both lenses, were negative in the two animals on which they were done, but in myself a slight plus reaction occurred with both, lasting twenty-four hours.

The fact that the ordinary cataractous lens caused some reactions more severe than the supposedly toxic lens suggested three possibilities:

1. Some cataractous lenses are especially toxic, such a one having been accidentally chosen here for a control.
2. All cataractous lenses are toxic when injected in this way.
3. All lens protein is toxic.

To investigate these questions, sixteen rabbits were injected by the technic described above, cataractous lens being used in the right eye, and normal pig lens in the left. The toxic properties of eight ordinary, mature, senile cataractous lenses, from patients who had shown no unusual postoperative reaction, were thus investigated, two rabbits usually being injected with 2 minims of a 10 per cent. emulsion of each lens. Twelve normal rabbits were used for the injections, which in ten cases were successful in that approximately the same amount of material remained in each eye. Four animals which had received previous injections subcutaneously or intraperitoneally were also injected. All the animals showed some reaction in one or both eyes. Of the normal group, this was the same in both eyes in five animals, and more marked in the right eye in five. All four of the previously injected animals showed a much more marked reaction in the right eye, three showing no reaction in the left and one a very slight reaction. None showed a more marked reaction in the left eye. The reactions varied in intensity, from a marked congestion

around the greater part of the limbus only, to more congestion with fibrinous exudate in the pupil, with, in several cases, a cloudiness of the cornea and marked hyperemia of the iris. None of the eyes included showed hypopyon or anything resembling a purulent infection,[5] and all cleared up within from three to seven days, the fibrin in the pupil and corneal opacity persisting a week longer in several cases. There was no difference in severity of reaction between the normal and previously injected group. Skin tests done on most of the animals were slightly positive only twice, in both cases to the cataractous lens only, so that even the lenses which produced severe ocular reactions were not toxic enough to cause marked dermal reactions. Of the different cataractous lenses used, three caused the most severe ocular reactions, these being somewhat less severe with the other five lenses. This might indicate a greater toxicity of these particular lenses, but the number of animals injected is too small for this to be definitely stated.

The results do show, apparently, that cataractous human lens is much more toxic than normal pig lens, since, of the fourteen eyes injected, nine showed more marked reaction to the cataractous lens. It would seem, however, that normal lens matter also possesses irritating properties, since nine eyes developed some reaction from it, usually slight, but fairly marked in several cases. If these small injections of cataractous lens material could produce such definite ocular reactions, it seems reasonable to suppose that the continuous absorption of a cataract over a longer period, or the leaving behind of relatively large amounts of lens material at operation, could easily account for the inflammations seen in our patients who were apparently not sensitive to lens protein. The reaction in these cases would then be a purely chemical one, with no relation to anaphylaxis.

The exact nature of this toxic or irritating principle, and why it occurs in larger amounts in the cataractous than in the normal lens, could be answered definitely only by chemical analysis of the lenses causing these reactions, which it was not possible to do in my cases. A certain amount of evidence is afforded, however, by other work on the chemistry of the lens. The idea that lens remains left at cataract operations are toxic is not new and was held by Lagrange and Lacoste and by Elschnig and Ulbrich to explain those reactions not caused by bacteria. Harold Gifford,[6] describing seven cases of glaucoma with severe inflammatory symptoms due to spontaneous absorption of cataract, concludes that the cortex, when freed in the aqueous, exerts a marked chemotactic influence. He believes it is not the mechanical effect of the lens that causes iridocyclitis in cases of dislocated lens, but the toxicity of the cortex or the broken down nucleus, which he has also seen cause severe reactions. The disintegration of parts of the nucleus, in fact, caused very severe attacks of pain, congestion and increased tension in a number of cases. Such an attack would subside when the disintegrated fragment had absorbed, to recur with equal severity when more disintegration had occurred, and these attacks would continue until the whole nucleus had absorbed. Schwenk,[7] describing a case of "hyperactive" cataract, is of the same opinion. Straub[8] investigated the question thoroughly, and his histologic examinations proved definitely that uninfected lens material may act as a pyogenic substance calling forth a secondary iridocyclitis of a special type, which he called endophthalmitis phacogenetica. He believed that both normal and cataractous lens material can be toxic when brought in contact with the aqueous, and his attempt to immunize a patient with lens protein was directed against the toxin, with no idea that the patient might be specially sensitized to it. He brings out the effect of this toxic lens substance in eyes with dislocated lens, those undergoing so-called spontaneous cure of cataract, and believes it may also be important in old blind phthisical eyes which become irritated.

Since we know that some of the amino-acids produced in the breaking down of any protein are distinctly toxic, it is natural to suppose that some of these toxic products may be freed when lens protein comes into contact with the aqueous. Clapp[9] proved that the aqueous contains a proteolytic ferment capable of splitting lens protein into simpler components, as shown by an increase in free nitrogen. He found, furthermore, that the lens itself evidently contains a similar ferment. Goldschmidt[10] isolated a cystein compound, glutathion, from the lens, a reducing agent which disappeared with advanced age and in cataractous lenses. One theory as to the cause of cataract rests on the conception of a gradual breaking down of the lens proteins by autolysis, in split products collecting in the central portions where metabolism is slowest. Burdon-Cooper[11] found tyrosin regularly in the lens and in the aqueous after discission, and states that crystals resembling leucin and tyrosin have been found in the cataractous lens.[12] The crystals described by Gabrielides[13] in hypermature cataract were probably of similar nature. Other evidence of a difference in composition between the normal and cataractous lens is given by Jess.[14] He found that the water soluble albumins of the lens, A and B crystallin, are greatly diminished in senile and especially cataractous lenses, while the insoluble albuminoids, containing large amounts of arginin, are greatly increased. B crystallin, containing cystein, is almost entirely absent from these lenses, being present only in a narrow zone under the capsule and absent entirely from the nucleus. He thinks the amino-acids formed from the crystallins in their natural autolysis pass through the capsule into the aqueous, while the components of the albuminoids remain. The presence of greater amounts of albuminoid in the central portions and less crystallin was previously found by Mörner.[15]

These findings, while they do not show exactly what is the toxic component of the cataractous lens, afford some basis for a belief that the split products resulting from the autolysis of the lens are responsible. This would explain the clinical observation that material from hypermature cataracts causes much greater reactions than from immature ones, that discissions on juvenile cataract seldom cause reaction, and that in senile cataract the greatest reactions occur when portions of the nucleus are left in the eye. While in sensi-

5. Two eyes not included developed a slow infection.
6. Gifford, Harold: Am. J. Ophth. **1**: 83 (Feb.) 1918.
7. Schwenk: Ophth. Rec. **26**: 465, 1917.
8. Straub: Over Ontstekingen door Oplossing van Lensmassa, etc., Amsterdam, 1919.
9. Clapp, C. A.: Am. J. Ophth. **7**: 131 (Feb.) 1924.
10. Goldschmidt: Arch. f. Ophth. **113**: 160, 1924.
11. Burdon-Cooper, J.: Brit. J. Ophth. **6**: 385 (Sept.) 1922.
12. I thought these split products might be estimated quantitatively by dialyzing lens substance, and determining the total nitrogen of the dialysate. In a number of cataractous lenses tested, however, the small amounts found in the dialysate were almost the same as when a similar amount of pig lens was dialyzed. The total nitrogen of the lens substance itself left after dialyzing corresponded well to the 16 per cent. of dried substance found by Balling (Ztschr. f. phys. Chem. **108**: 186, 1920). Evidently the split products, if dialyzable, are absorbed through the lens capsule as soon as formed.
13. Gabrielides: Ann. d'ocul. **161**: 561, 1924.
14. Jess: Arch. f. Ophth. **105**: 428, 1921; Ztschr. f. Augenh. **46**: 237, 1921; Ophth. Ges. Heid., 1920, p. 224; Arch. f. Ophth. **109**: 463, 1922.
15. Mörner, quoted by Jess (Footnote 14).

tized persons it may be true, as Verhoeff and Lemoine suggest, that clear lens material may cause the greater reactions, this is certainly not in accord with clinical observations in the majority of cataract cases in which the reactions would seem to be due to these split products. The fact that retained lens rests cause reaction in some patients and not in others may be explained by differences in the process of autolysis, certain amino-acids being formed in greater amounts under certain conditions such as reaction of the tissues and rapidity of cataract formation.

SUMMARY

1. Of eighty-six patients tested with lens protein, 12.6 per cent. gave positive dermal reactions.

2. Of those giving positive skin tests, six showed unusual postoperative ocular reactions, which may well be interpreted as due to their sensitization to lens protein. In a further case with a very severe reaction there seemed no doubt of this.

3. It was found possible to sensitize animals by injections of lens protein, so that discission produced an increased ocular reaction; but this occurred most often in animals treated so intensively as to be immunized to lens protein.

4. In eight patients with negative skin tests, ocular reactions, apparently due to absorbing lens matter, occurred, indicating some toxic factor, not depending on anaphylaxis, in the lens matter itself.

5. Normal lens matter showed toxicity when injected into the anterior chamber of the eyes of animals, but cataractous lens matter was apparently much more toxic, nine of fourteen animals showing more marked reactions from the cataractous lens, and none more marked from the normal lens.

6. There is evidence that autolysis of the lens proteins occurs, with the production of leukomains and allied products, which may be toxic, and that the chemical differences between cataractous and normal lenses can explain the greater toxicity of cataractous lens matter.

7. While endophthalmitis phaco-anaphylactica, in the sense of Verhoeff and Lemoine, undoubtedly does occur, a large number of reactions to lens substance cannot be explained as anaphylactic, and perhaps a majority of such reactions are due to the toxicity of lens matter itself. Hence a better name for the whole group of reactions is that of Straub, "endophthalmitis phacogenetica."

ABSTRACT OF DISCUSSION

DR. F. H. VERHOEFF, Boston: The observations made by Dr. Gifford confirm, in the main, those of myself and Lemoine. The percentage of positive skin tests obtained in a series of eighty-seven selected patients, 12.6, seems too high in view of the fact that we have never obtained higher than 8 per cent. Possibly this may be explained by a considerably higher average age of the patients. The ages, however, are not given. Another possibility is that some of the reactions were due to infected powdered lens substance. It is extremely difficult to insure sterility of the latter, and we have ourselves at times obtained atypical reactions due to this cause. This may be the explanation of the markedly positive skin test persisting over seventy-two hours in the case of the authors in which no ocular reaction occurred after cataract extraction in spite of retention of a good deal of lens cortex.

The authors state that, in eight patients with negative skin tests, ocular reactions occurred. On referring to the details briefly given of these cases, I find that in three there were hypermature cataracts. In our first paper we pointed out that hypermature cataracts possessed toxicity and produced inflammatory reactions not dependent on hypersensitiveness to lens protein. In the fourth case of the authors, dental infection is admitted as a probable cause. In the fifth case, congestion persisted only two weeks and vision of 20/20 was obtained, and in the seventh case, the ocular reaction was still less than this. Thus, exclusive of reactions due to hypermature cataracts, there were only two cases out of seventy-six with negative skin tests in which ocular reactions of any severity occurred. Moreover, in the only really serious case of ocular reaction due to retained lens substance reported by the authors, there was a markedly positive skin test. My own conclusion from these observations would be that in the absence of hypersensitiveness to lens protein on the part of the patient, retained lens substance has remarkably little irritating effect on the eye. And in view of the well known frequency with which cataractous lens matter is left in the eye without causing serious reactions, I should assume that there must be some explanation other than toxicity of such lens matter for the two cases in question. Eyes vary so greatly in the reactions they show after operative intervention that it is often difficult to determine whether retained lens substance is a causative factor or not. I believe, however, that, even in the absence of hypersensitiveness recognizable by skin tests, lens substance can produce a certain amount of intra-ocular reaction, but never of a serious nature.

The animal experiments reported by the authors seem to me inconclusive.

I hesitate to accept at their face value the experiments on rabbits made by the authors in which they obtained greater reactions in eyes injected with cataractous than those injected with normal lens substance. For it seems to me it would be impossible to remove cataractous lens matter from a human eye at operation in such a way as to keep it completely sterile. In fact, the authors state that two eyes, not included, developed a slow infection. It seems unfortunate that none of the animals' eyes were examined microscopically. The authors state that we assumed organ specificity for the lens. Aside, possibly from our introductory remarks on the work of other investigators, I can find nothing in our paper to warrant this statement, and certainly our work and conclusions were not in any way based on it.

DR. ARNOLD KNAPP, New York: During the past year I have selected eleven cases that developed iritis after cataract extraction and had retained cortex for the lens protein test. Of these cases we obtained a skin reaction in only two. These two cases were not serious and went on to recovery. Dr. Gifford's paper is extremely interesting and valuable. At the same time I think the subject is a very difficult one. I should like to ask him, What is the smallest degree of skin reaction he regards as positive, and, second, does the iridocyclitis anaphylactica have any clinical manifestations which are peculiar? In connection with a case reported by Dr. Gifford, I should like to mention the following experience: A man of 60 had a traumatic cataract from an intra-ocular foreign body. The foreign body was extracted by the giant magnet and the patient was discharged until the lens was mature enough to operate. He returned a few weeks later with glaucoma. The posterior capsule had ruptured, and nucleus and cortex were floating in the vitreous. The glaucoma did not respond to ordinary medical remedies, and in desperation a paracentesis was performed which reduced the tension. The patient was kept on his face for the greater part of each day hoping that the nucleus would return into the anterior chamber. This did not occur, but there was no further trouble. The cortex was absorbed, and although the nucleus remained visible with the ophthalmoscope for at least five months, now seven months since the injury his vision is 20/30 and the eye is quiet and there is no indication of tension. The nucleus can no longer be seen even with dilated pupil. In this case the skin lens protein test was negative.

DR. ALBERT N. LEMOINE, Kansas City, Mo.: Since publishing our last work on phaco-anaphylactic endophthalmitis in 1923, I have seen only three cases with severe inflammatory reaction, following cataract extraction. Two of these were sensitive to lens protein; the third was a diabetic patient whose blood sugar had been reduced to normal by insulin

and diet before operation. This patient was not sensitive to lens protein.

In all the cases published in our former papers, we spared no effort to eliminate all other causes of inflammation and excluded several cases in which we found more than one factor involved. While I was on the service of Dr. Derby, he had a case of perforating wound of the cornea and lens. This patient gave a positive test to lens protein. He later developed a severe intra-ocular inflammation. In view of the work we were doing, Dr. Derby removed the lens, which was surrounded by exudate. It was sectioned and stained and found to contain bacteria. That case was not included in the report because we were not positive that there would have been any inflammation had there been no infection. I wish to confirm the points brought out by Dr. Verhoeff in his discussion. In our original paper we not only called attention to the fact that the inflammation following rupture of the lens capsule in morgagnian cataract was not anaphylactic in origin, but also discussed the differential histopathology in the two types of inflammation.

DR. SANFORD R. GIFFORD, Omaha: The lens substance for skin tests was obtained from pigs' eyes under sterile precautions. They were tested repeatedly for sterility, and only those were used which proved sterile. When the dilutions 1:10, 1:100 and 1:1,000 were used, a definite positive test showed a large urticarial wheal with 1:10 and a small one with 1:100 and a slight one with 1:1,000. The human cataractous lenses used for animal experimentation were picked up with forceps as they presented before touching the lids, and put in a sterile bottle; cultures were taken for sterility. Of course, a negative culture does not guarantee that they were sterile, but they were obtained under practically the same conditions as the pig lenses and so may be assumed to be as sterile. Dr. Verhoeff mentioned in his original report that hypermature cataracts were the most toxic type. I would interpret this as evidence of a process of autolysis going on in the cataractous or possible precataractous lens, which reaches its highest degree in the hypermature cataracts. It seems reasonable that if hypermature cataracts are very toxic, mature cataracts may also be somewhat toxic. I do not see any reason why in these cases of patients with hypermature cataracts causing ocular reaction we should not consider the reaction due to absorption of the lens material. In cases reported by my father, he observed that when particles of the lens began to peel off, an acute attack of inflammation occurred, and when these were absorbed, the reaction would subside. We used rabbits for the test because we could observe their eyes better, considering that the traumatism of a discission on the small eye of a guinea-pig would be rather severe and the reaction would be hard to read. As to Dr. Knapp's question about the clinical feature of the cases, they simply showed a congestion, pain and the presence of absorbing lens material in the eye. Some showed increased tension, especially those with hypermature cataracts. The reason sections of the rabbits' eyes were not made was that in them the reaction subsided after a period of from two to three weeks after the small amount of lens material injected was absorbed. If the lens material had been infected the inflammation should not have subsided but should have gone on to panophthalmitis.

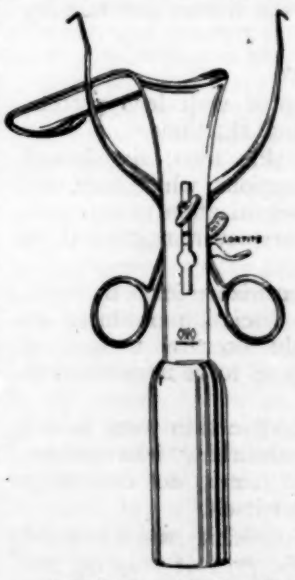
Pathology of Dysentery.—The richness of the polymorphonuclear exudate in the presence of a proved infection with *Entamoeba histolytica* or with *Balantidium coli* is in direct proportion to the activity of any pathogenic bacterial organism that is associated with lesions produced by the protozoon. Any conspicuous number of leukocytes always indicates one of two things: 1. An infection with *Bacillus dysenteriae* superimposed upon a preexisting amebiasis or balantidiosis, in which case the leukocytic exudate will be massive, will contain phagocytic macrophage cells, and will show evidence of toxic necrosis. 2. A less malignant secondary bacterial infection of amebic or balantidial ulcers, in which event the leukocytic exudate will be relatively scant and diffuse, and phagocytic macrophage cells and evidence of necrosis will be absent.—Haughwout.

Clinical Notes, Suggestions, and New Instruments

THE GELPI-BUBIS WEIGHTED VAGINAL SPECULUM

J. L. BUBIS, M.D., CLEVELAND

This is a two-piece instrument consisting of the Gelpi perineal retractor supplied with a Haslam Loktite locking device and thumb-set screw over which the groove of the Bubis weighted speculum is placed into position.



Gelpi-Bubis weighted vaginal speculum.

The instrument has been given a thorough trial at the Mount Sinai Hospital of Cleveland in all gyneplastic operations. It is especially adaptable for the repair of the cervix and cystocele and also for vaginal hysterectomies. The amount of tension and exposure of the vagina are easily controlled, and at least one assistant can be dispensed with during the operation.

The Gelpi perineal retractor is first placed in position and the Bubis weighted speculum is superimposed and fixed in the right position with the thumb-screw.

302 Seventy-First-Euclid Building.

HERNIA IN A WOMAN 104 YEARS OLD

G. W. COTTIS, M.D., JAMESTOWN, N. Y.

Mrs. A. P., born 1820, had a right femoral hernia, which became strangulated in 1851. A messenger was sent on horseback to Dunkirk, 30 miles away, for a surgeon, whose name has been forgotten. An operation relieved strangulation, but hernia promptly recurred. Strangulation occurred again in 1865. An operation was done by Dr. Cornelius Ormes, with reduction of the strangulated bowel. The hernia persisted, and in 1893 strangulation necessitated a third operation, which was performed by Drs. Rice and Scofield. From this time on the hernia grew progressively larger until the sac, when distended, was as large as a coconut. It was impossible to retain the contents after reduction, and the patient learned to reduce the hernia when the pressure became sufficient to cause pain. Her family physician was called with increasing frequency as reductions became more difficult. March 2, 1924, the hernia became irreducible. The symptoms of intestinal obstruction developed rapidly, with great distention of the abdomen and severe vomiting. The patient refused to go to the hospital, and an operation was performed in her bedroom.

Under procain anesthesia, the sac was opened and found to contain a large mass of small intestine and mesentery. The loops of bowel were adherent to one another, and the mesentery was edematous and so swollen as to prevent reduction from below. The abdomen was opened and the femoral ring enlarged as the result of cutting the fibers of Poupart's ligament. By traction from above and taxis from below, the entire mass of bowel and mesentery was drawn into the abdomen. The neck of the sac was divided and the peritoneum closed from above with chromic catgut. The femoral ring was closed with kangaroo tendon sutures. The large sac, which was thick and fibrous and firmly attached to the tissues of the thigh, was left undisturbed. A few days later, the sac became distended with serous fluid. It was then widely opened and packed with gauze, which was removed gradually during the next ten days. Uneventful healing followed. On account of the great age of the patient (103 years 8 months),

she was lifted from her bed into a chair on the third day. She began to walk two weeks after the operation, and at the present time, fifteen months later, there has been no recurrence.

In November the old lady insisted on going to the polls and voting for the President. June 20 of this year she was 105 years old, and she is still active enough to work in her flower garden every day.

Special Article

REPORT OF COMMITTEE ON OTO-RHINOLOGIC HYGIENE OF SWIMMING *

The Commitee on Otorhinologic Hygiene of Swimming begs leave to submit the following report:

The healthfulness of swimming as an exercise is undeniable, but the human body lacks adaptation to sojourn in water, and means for its protection are, therefore, necessary.

Public health authorities, in most of the states, have promulgated adequate rules for the construction, maintenance and bacteriologic examination of swimming pools and bathing places.

In certain states, notices are now suggested or prescribed, "warning persons with colds, head infections, running noses or ears or catarrh, that swimming or diving tends to force infection into the sinuses or ears, resulting in serious, if not fatal, consequences." The use of such notices should be suggested to the public health authorities of all the states.

It is suggested that oiled wool or other effective methods of closing the external auditory meatus be advised, in order to prevent external otitis.

It is further suggested that improper swimming or diving habits (such as inbreathing when the head is more or less submerged; diving feet first with nostrils open; blowing the nose, coughing or hawking into the tank) should be forbidden by public health authorities.

Research has disclosed rapid lowering of body temperature and hence of resistance to infection, both from immersion and from exposure of the body in wet bathing suits; it is therefore suggested that a time limit of from forty-five minutes to one hour be placed on use of a pool by each bather in order that:

1. The number of bathers at any given time (bathing load) may be reduced.

2. The loss of body heat due to chilling may be minimized.

It is further suggested that the Bureau on Health and Public Instruction, and the editors of *Hygeia* be advised of these recommendations and requested to cooperate with a committee of this section in the preparation of standard posters, notices and articles on the proper technic of swimming and diving, including breathing habits; methods of getting rid of water; methods of keeping water out of the ears and nose; physical effects of exposure and immersion in normal adults and children, and the relation of swimming and diving to recurrent colds, chronic accessory sinus disease, otitis and deafness.

In this connection, the services of noted experts, both teachers and record holders in these valuable sports, should be secured, with the collaboration of members of this section. Suggested texts of posters and certain state regulations of approved purport are appended hereto.

Respectfully submitted.

H. M. TAYLOR, Jacksonville, Fla.
Chairman.
HILL HASTINGS, Los Angeles.
M. F. ARBUCKLE, St. Louis.
LEE M. HURD, New York.
RALPH A. FENTON, Portland, Ore.

APPROVED FORM OF NOTICE

In order to maintain proper standards and protect the health of patrons, it is necessary to insist on observation of the following rules, which are approved and their strict enforcement required by the ——— State Board of Health:

Warning: Persons with colds, head infections, "running nose or ears," catarrh, are warned that swimming, diving, etc., tend to force the infection into the sinuses or ears, and result in serious if not fatal complications.

1. All bathers shall use shower baths, including soap, if necessary, before entering the plunge. (The plunge is not intended as a bath tub.)

2. Bathers who have been outside the bath house or plunge enclosure shall not reenter without passing through a foot bath and using a shower.

3. Bathers shall be forbidden to wear private bathing suits that are not properly laundered; light colored or undyed wool is suggested.

4. Women shall wear caps while in plunge.

5. Persons not dressed for bathing shall not be allowed on walks surrounding plunge, and bathers shall not be allowed in places provided for spectators.

6. No person suffering from a fever, cold, cough or inflamed eyes shall be allowed the use of the plunge. (These disorders may be transmitted to others.)

7. No person with sores or other evidence of skin disease, or who is wearing a bandage of any kind, shall be allowed the use of the plunge. (A bandage may conceal a source of infection.)

8. Spitting in, or in any other way contaminating, the plunge, and spitting on floors, runway, aisles or dressing rooms shall be prohibited.

9. Public combs or brushes shall not be furnished, and such articles left by bathers shall be permanently removed.

10. Eating within the plunge enclosure shall be prohibited.

11. Bringing or throwing into the plunge any objects that may in any way carry contamination, endanger safety of bathers, or produce unsightliness, shall be prohibited.

The majority of our patrons will observe these rules of their own accord and will render us a great service by reporting any infractions to the attendants. Any person failing to comply with the foregoing rules will be immediately expelled and denied the future privileges of the bath house.

RULES FOR SANITATION AND SAFETY OF SWIMMING POOLS

1. All swimming pools are to be maintained with a practical minimum amount of contamination. There shall be not more than 1,000 colonies per cubic centimeter of standard agar medium after incubating for twenty-four hours at 37 F. The *B. coli* content shall be such that gas is produced in not more than one and a half of standard lactic broth cultures after incubation for twenty-four hours with 1 c.c. of water.

2. Water in the pool shall at all times of use be sufficiently transparent, under existing lighting conditions, that when the water surface is not excessively agitated by bathers, a person can stand at the side of the pool and see the bottom distinctly where the depth of water is 6 feet or less.

3. Facilities for adequate protection of the pool water against unnecessary sputum contamination by bathers shall be provided.

4. All persons known to be or suspected of being affected with infectious diseases shall be excluded from the pool.

5. Contamination of the pool resulting from lack of personal cleanliness of bathers shall be maintained at a minimum.

6. Construction and appliances shall be such as to reduce to a practical minimum the danger of drowning and of injury to bathers from falls or collisions.

7. Dressing rooms, hallways, toilet rooms, shower rooms and other places to which patrons of a bath house have access shall be kept clean and well ventilated at all times.

8. Bathing suits and towels, when distributed to bathers by the pool management, shall be clean and free from excessive bacterial contamination.

9. The management of the pool shall have printed and posted in conspicuous places about the establishment notices briefly informing patrons of the requirements to which they are subject in the maintenance of a safe and sanitary pool. A form of notice is suggested to pool operators; it should be so placed that all bathers cannot fail to read it before entering the pool.

The committee submitted suggestions for appropriate posters and warning notices, which appeared in the July and August issues of *Hygeia*.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., May, 1925.

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SATURDAY, AUGUST 1, 1925

THE NEW WOODS HOLE LABORATORIES

Abraham Flexner[1] has recently remarked that medicine, moving as rapidly as may be toward scientific status, recognizes no difference in intellectual attitude between laboratory and clinic. Medical research is not confined to the materials and problems that are furnished directly by patients. There are few of the natural and physical sciences from which medicine does not borrow; indeed, its modern development is closely bound up with the progress of the biologic disciplines. Many of the fundamental features of life are involved in the function of a microscopic bit of protoplasm, like that of the ameba, quite as intricately as in the behavior of the more complex higher organisms. The time has passed when the study of the simpler forms of life, their anatomy, physiology, life history and genetic relationships, is to be regarded as remote from human interests and problems. Thus it happens that the paths of approach of the medical worker in his study of morphologic changes in the body, such as the pathogenesis of neoplasms, the hypertrophy of a tissue, or the atrophy of an organ, may lead to the same center of interest that attracts the technical zoologist or botanist. Heredity and evolution, daily themes of the latter, are equally significant in the contemplations of the physician.

Accordingly, American medicine must share with the biologic sciences in the pride and satisfaction growing out of the formal opening of the new quarters of the Marine Biological Laboratory at Woods Hole, Mass., formally dedicated, July 3. With a plant and investments representing two million dollars, the Woods Hole organization approaches the foremost rank among the workshops devoted to the study of living nature. There investigators representing the advance guard of the biologic sciences can find welcome, opportunity, unique facilities and personal stimulus for the exploration of protoplasm in its varied manifestations. There will be found abundant inspiration to outdistance the descriptive technic of the older biologists, who rarely depended on the microscope or the indirect analysis of the biochemist. The most intimate features of the protoplasm remain to be explored by recondite methods, just as the newer chemistry and physics have penetrated what was once supposed to be the impenetrable barriers of the atom.

Like most that is good, the Marine Biological Laboratory is not a product of mushroom growth but the outcome of a steady development from humble beginnings. Like some of the foremost biologists of the past generation, it came in the wake of the little group whom Louis Agassiz assembled at Penikese Island half a century ago.[2] For more than a quarter century Jacques Loeb pursued part of his researches at the Woods Hole laboratories. Scores of investigators still living have received training and inspiration there. American science will rejoice in the opportunities, now greatly enlarged, that remain.

1. Flexner, Abraham: Medical Education, New York, the Macmillan Company, 1925.

BILE PIGMENT AS AN EXPRESSION OF BLOOD DESTRUCTION

Until recently, contemplation of the pigmentation of the skin and the urinary excretion of bile pigments in jaundice has almost invariably awakened thoughts of the liver and the failure of the hepatic functions which such symptoms have indicated. The newer knowledge of the origin and behavior of one of the components—the bile pigment, bilirubin—responsible for the manifestations described is likely to direct attention to further features of the pigment production and migrations in the body. Though it is conceivable that a variety of chemically related substances, such as the plant pigment chlorophyl, may act as precursors of the bile pigment, at present the only known source is hemoglobin. Furthermore, we are for the present committed to the belief that bilirubin may be formed from hemoglobin outside of and independently of the activity of the liver cells, so that its genesis from hemoglobin may have a diversity of sites outside the hepatic epithelium.[3]

As Rich[4] recently expressed the situation, hemoglobin spilled into the tissues almost anywhere in the body may be transformed, locally, into bile pigment; and the presence of an excess of hemoglobin in the circulation, whether introduced in pure form experimentally or liberated during hemolysis in pathologic conditions, is regularly followed by an increased formation of bile pigment. Consequently, if the production of bilirubin from hemoglobin and its subsequent excretion by the liver were a sort of "house cleaning" device for ridding the organism of effete blood pigment, the occurrence of bile pigment would be brought into

2. A description of these early days is given in David Starr Jordan's The Days of a Man.

3. The Formation of Bile Pigment, editorial, J. A. M. A. 85: 271 (July 25) 1925.

4. Rich, A. R.: The Formation of Bile Pigment, Physiol. Rev. 5: 182 (April) 1925.

new relationships. Rous and Drury [5] have pointed out recently that the amount of bilirubin present from day to day in the bile constitutes an immediate, if not entirely accurate, index to the amount of blood destruction, whether this is in part the consequence of pathologic influences or merely the result of ordinary corpuscular wear and tear.

It follows from this that, other things being equal, the manifestations of jaundice arising from bile retention will to some extent be conditioned in degree by the amount of blood destruction that takes place. Rous and Drury have, in fact, observed that the jaundice of bile retention is far less pronounced during secondary anemia than when the patient is full blooded, other things being equal. Experimentally induced losses of red cells, they note further, find expression at once in a lessened accumulation and urinary excretion of bile pigment. As regeneration of hemoglobin takes place in cases of obstructive jaundice, the amount of bile pigment increases *pari passu* both in plasma and in urine. "Corpuscular wastage" finds a direct expression under such circumstances through variations in bilirubinemia and bilirubinuria.

PLANT PATHOLOGY AND MEDICINE

Medicine has taken a large toll of inspiration as well as information from physics, chemistry, zoology and botany, which have supplied innumerable impulses to development; indeed, like hygiene, medicine is a sort of superstructure built on their accomplishments and developed by their methods. If medicine is grateful to physics for the roentgen ray, to entomology for indispensable knowledge of the life habits of the malaria-bearing mosquito, or to horticulture for the development of useful digitalis leaves, she must be ready to promote the independence of the sciences. For, as Lord Moulton [6] has remarked, the more intricate the subject matter, the more necessary it is that those engaged in the research should be free to investigate the whole field fully and exhaustively.

At present, medical research is receiving an unmistakable impetus from the domain of plant pathology. Though transmissible diseases are generally considered to be due to the invasion of specific forms of germ life, there is a considerable number of maladies, in both the animal and the plant world, in which no germ cause has as yet been found. One of the most perplexing of these in the relation of plant life is the trouble that is commonly known as "mosaic" disease. The causal agent, though still of unknown nature, seems to be established as a "filtrable virus." Mosaic diseases are important economically in the culture of many plants. Potatoes, tobacco, sugar cane, tomatoes and cucumbers are seriously affected by such maladies. The mosaic disease expresses itself most commonly by mottling of the leaves, as a consequence of the alternating light green and dark green areas produced. Stunting and malformation are also common symptoms. These diseases are infectious, being commonly carried from plant to plant by plant lice, and can also usually be readily transmitted artificially. This provides a welcomed opportunity to supplement the study of the development and behavior of filtrable viruses in general through the use of the plant as the test agent.

It has already been suggested through Olitsky's [7] investigations at the Rockefeller Institute for Medical Research that in tobacco mosaic there is a particulate multiplying organism rather than a "fluid contagium." E. F. Smith,[8] who has long been among the small minority of ardent defenders of the parasitic origin of cancer, points to the newer contributions on the behavior of mosaic disease in plants as an incentive to continue the search for tumor-producing agencies by the technic afforded thereby; indeed, he points to Gye's recent as yet unpublished work in London as a challenge to those who are contented to champion the more popular theories of cancer production. The latter believe the cancer cell to be, so to speak, "a normal cell with the brakes taken off"; whereas the protagonists of parasitic factors regard it, chemically and physically, as "an abnormal cell, the driving power of which is some extraneous influence more powerful than the physiologic control which normally keeps all the organs and tissues of the body in harmonious cooperation." Incidentally, it is of interest to learn from recent experiments by Johnson [9] in Wisconsin that apparently healthy plants may carry a "repressed" filtrable virus that will "take" on other plants. One is thus reminded of healthy bacterial "carriers" among human beings.

THE REACTION OF LIVING CELLS AND TISSUES

Acidity and alkalinity have been subjected to a revised interpretation and have come to have a new importance in modern biologic science. At the end of the last century it was customary to ascertain the reaction of fluids by titration. On this basis the alkalinity of the blood, for example, was represented to be of an order that is now regarded as erroneous. The method of titration, a recent writer [10] succinctly explains, merely informs us of the quantity of bases that are present either uncombined or else combined with acids, such as carbonic acid, which are displaced

5. Rous, Peyton; and Drury, D. R.: Jaundice as an Expression of the Physiological Wastage of Corpuscles, J. Exper. Med. **41**: 601 (May) 1925.

6. Science and the Nation, Essays by Cambridge Graduates with an Introduction by the Right Hon. Lord Moulton, Cambridge University Press, 1917.

7. Olitsky, P. K.: J. Exper. Med. **41**: 129 (Jan.) 1925.

8. Smith, E. F.: Some Newer Aspects of Cancer Research, Science **61**: 595 (June 12) 1925.

9. New Pages in Farm Progress, Annual Report of the Director 1923-1924, Agricultural Experiment Station, Univ. of Wisconsin, Bull. 373, April, 1925, p. 6.

10. Robertson, T. B.: Principles of Biochemistry, Philadelphia, Lea & Febiger, 1924.

from their compounds by the stronger acids used in titration. If all the bases are present in the free, uncombined form, then, in dilute solutions at all events, the true alkalinity or hydroxyl ion concentration may be fairly accurately estimated to be equivalent to the amount of acid required for neutralization. But this is not all the case if the bases are partially or wholly combined with weak acids, because in that event the addition of the acid employed in titration displaces the weak acid, which, when uncombined, by reason of its slight dissociability, ceases to affect materially the reaction of the fluid. The titratable alkalinity of the blood, therefore, bears no relationship to its actual alkalinity, or hydroxyl ion concentration. It does, however, bear some relationship to the power of the blood to maintain its neutrality—in other words, to the alkali reserve of blood.

As a consequence of these distinctions, numerous efforts have been made in recent years to ascertain the hydrogen or hydroxyl ion concentration of the tissues and fluids of the body in health and disease. Even slight variations in these physicochemical factors are known to attain a considerable significance in altering physiologic reactions; and the organism is admirably equipped with chemical and other regulatory devices to prevent any considerable deviations from whatever may be normal for the mediums in which the characteristic changes of the organism take place. Some of the bodily mechanisms, the respiratory center, for example, are exceedingly reactive to very small variations in hydrogen ion concentration.

It has been demonstrated that the reaction of the blood, measured by the newer standards, approaches a "neutrality" of significantly constant character. For blood plasma the condition is represented by p_H 7.38, or somewhat on the side of "alkalinity." The use of suitable indicators intra vitam, including dyes that find entrance into tissues and the cells themselves, has afforded interesting information regarding the conditions of reaction obtaining there. Whereas plasma, lymph, peritoneal fluid and edema are, as one would expect, demonstrably alkaline, the cytoplasm of cells usually betrays an acid reaction. According to Rous [11] of the Rockefeller Institute for Medical Research, who has succeeded in inducing an entrance of litmus and other indicators into living cells, the acidity of some of the contents may be considerable during life. In some cases a p_H of 3.0 or less was indicated. Such vital staining demonstrates anew, according to Rous, that the intracellular reaction during life is independent of that of the body fluids in which the cells are, so to speak, continually bathed. Already there are suggestions that through the niceties of such observed vital staining reactions it may become possible to distinguish between living and dead cells—perhaps between vigorous and decadent ones. With the further development of the new technic, it is conceivable that the active morphologic components of the body may be compelled to betray the secrets of their reactions in minute ways not heretofore subjected to such direct observation.

11. Rous, Peyton: The Relative Reaction Within Living Mammalian Tissues, J. Exper. Med. 41: 389, 399 (March), 451 (April) 1925.

Current Comment

THE INDISCRIMINATE USE OF ROENTGEN RAYS

The dangers attending the indiscriminate use of roentgen rays need no longer be emphasized to physicians. Most of them have been confronted with evidence, sometimes of a highly distressing character, in the persons of afflicted patients. The public, on the other hand, has not yet been adequately awakened to a realization that these highly potent rays have potentialities for harm as well as for occasional benefit. The layman has not yet learned to be sufficiently wary of quacks or other persons of unethical standing who glibly advertise the unique successes of the complex electric device—the roentgen-ray machine—that awakens awe through the ominous sputter of its radiant discharges as well as through the freely circulated story of its therapeutic performances. The New York Academy of Medicine has done a real public service in its recent report on the indiscriminate use of roentgen rays in the treatment of hypertrichosis.[1] Among dermatologists the accepted method for the removal of superfluous hairs is the tedious but usually harmless process of electrolysis. Yet the academy's committee on public health has secured evidence that roentgen rays are being extensively used by commercial institutes under express guarantees of absence of harmful effects on the skin. Not only are exorbitant fees extracted from the undiscriminating and gullible public, often persons of the poorer classes among whom "good looks" are uniquely prized; but the permanent and often hazardous subsequent disfigurements actually follow. They begin as telangiectases and parchment-like atrophy, and may later go on to keratoses and malignancy. If there really are times "when ignorance is bliss," they assuredly do not include the ominous moments when a wily "beauty specialist" permits the life-killing rays of short wave length to impinge on the bearded skin of his unsuspecting victim.

HIRSHBERG—IN AGAIN AND OUT AGAIN

Probably all physicians and many laymen remember the syndicated medical articles that used to appear in newspapers credited to "Dr. Leonard Keene Hirshberg, A.B., M.A., M.D. (Johns Hopkins University)." Many years ago Hirshberg was a member of his local medical society and of the American Medical Association. As a result of some of Hirshberg's crude journalistic work, the Board of Censors of the Baltimore State Medical Society took action against Hirshberg and was about to expel him from the

1. Bull. New York Acad. Med. 1: 159 (June) 1925.

society when Hirshberg obtained an order from the court charging the Board of Censors to proceed no further in the matter. Then he resigned! In September, 1922, Hirshberg was arrested by the federal authorities and held on $15,000 bail, charged with being implicated in the operation of a large blind pool swindle in the East. In May, 1923, he began to serve four years in the Atlanta penitentiary, following his conviction on the charge of defrauding more than three thousand investors out of approximately one million dollars. By December, 1923, the newspapers reported that Hirshberg's friends were circulating a petition for commutation of his sentence, it being alleged that United States Senator Copeland was said to favor the movement. June 24, 1925, Hirshberg was released from the Atlanta penitentiary on parole. A week or two later THE JOURNAL received information to the effect that Leonard Keene Hirshberg was representing himself as "physician-in-chief" of the "National Health Service," a commercial organization that the Surgeon General of the U. S. Public Health Service declares is attempting to capitalize the research work done by the United States government and to confuse the public into believing that it is in some way identified with the Public Health Service of the government. (See THE JOURNAL, last week, page 279.) Leonard Keene Hirshberg, out of the penitentiary after serving only about two years of a four years' sentence, steps promptly into a scheme on the border of the twilight zone of medical practice. The lives of those who balance on the teetering edge of honesty is an ever recurring cycle of in again and out again.

EVOLUTION

The intellectual world has been regaled during the last few weeks with the spectacle of an attempt to establish scientific facts by legal decision. The procedure, while interesting, could obviously be only a fiasco. To some extent it gave opportunity for scientists of note to utilize the publicity attached to the trial for the education of those who might otherwise be but little interested in the methods and statements of science. At the recent annual session of the Association in Atlantic City, the House of Delegates formally endorsed a resolution calling for the removal of any restrictions on the teaching of science, and stating that the facts of evolution were fundamental to a proper comprehension of the basic medical sciences. The views which, no doubt, animated the unanimous approval of the Delegates, have been well expressed in a work,[1] now in its third edition and its fifth printing, by that well known leader in medical science, William Williams Keen of Jefferson Medical College, Philadelphia. In 1922, Dr. Keen delivered a commencement address at the Crozer Theological Seminary under the title, "I Believe in God and in Evolution." Recognizing that the attitude of the church, and especially of the clergy, toward science and toward the origin of man is of incalculable importance, Dr. Keen attempted to reconcile belief in a higher power with scientific fact. He made it clear that evolution antedated Darwinism and cited numerous evidences from medical literature to support the view that the cycle of evolution includes not only the development of animal life by an evolutionary process, but also a direct relationship between the growth of man and the growth of animals. He concluded finally that man's ascent from an animal of low intelligence seems to be absolutely proved by the many phenomena that reveal identical organs and identical physiologic processes in the animal and in the human body. Dr. Keen does not find this inconsistent with his own spiritual belief, nor, indeed, with his personal belief in the immortality of the soul, and many others are able to adopt a similar point of view. Regardless of one's convictions theologically it is well, in times when man's thoughts are confused by the intricacies of oratory and legal procedure, that there should be available scientific men with clear minds who are able to state their knowledge and their beliefs and to distinguish clearly between well established fact and unreasoning credulity.

1. Keen, W. W.: I Believe in God and in Evolution, Philadelphia, J. B. Lippincott Company.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Sanatorium Burned.—The Desert Inn Sanatorium, at McDowell Road and Crosscut Canal, Phoenix, was destroyed by fire of unknown origin, July 12. The patients were not injured. The sanatorium was owned by Dr. Francis H. Redewill, San Francisco.

ARKANSAS

Hospital News.—A $60,000 addition to the Warner-Brown Hospital, El Dorado, has been completed, giving the hospital a total capacity of seventy-five beds.——An addition to St. Mary's Hospital, Russellville, will be constructed soon, adding about fifteen beds to the capacity of the hospital, a roentgen ray and laboratory room, and a classroom and dining room.

Health Unit on Tour.—The bureau of child hygiene of the state board of health has equipped a truck as a child health unit, which is touring the counties in northern Arkansas this summer. Dr. Margaret W. Rhode Koenig is field director of the unit and, in addition to carrying out a schedule of examinations at various towns, will cooperate with the agricultural extension division of the state university in giving health examinations for girls during four of the short summer courses. In the last sixteen months, it is said, the traveling health unit has visited eighteen counties and examined more than 6,000 children of preschool age.

CALIFORNIA

Eugene J. Rinaldo Arrested.—Special Agent Albert Carter of the state board of medical examiners recently arrested Dr. Eugene J. Rinaldo, Los Angeles, on a charge that he practiced medicine after his license was revoked, July 9, 1924. Carter declared, it is reported, that he discovered more than thirty prescriptions at a neighborhood drug store signed by Rinaldo.

Los Angeles' New Health Commission.—Dr. Michael S. Creamer has been elected president of the newly appointed health commission, Los Angeles, and Dr. Edward H. Anthony, vice president. Health Commissioner Dr. George Parrish has

been made general manager of the department, in accordance with provisions of the new city charter, and will hereafter be known as health officer.

Professor Putti to Deliver Lane Lectures.—Prof. Vittoria Putti, director of the Rizzoli Institute, Bologna, Italy, will deliver the Lane Medical Lectures for 1925 at the Stanford University School of Medicine, San Francisco, October 5-9. The subjects will be "Congenital Dislocation of the Hip"; "Arthroplasty: History and General Considerations"; "Arthroplasty: Technic"; "New Conceptions of the Pathogenesis of Sciatic Pain," and "The University of Bologna in the History of Medicine."

CONNECTICUT

Personal.—Charles Dale Beers, Ph.D., Johns Hopkins University, and Harold Kirby, Jr., Ph.D., University of California, have been appointed instructors in biology at Yale University, New Haven.

Well Child Conferences.—During July, well child conferences were held under the auspices of the state department of health at Hazardville, Westbrook, Broad Brook, East Hampton, Windsor, Old Saybrook and Andover.

Study of the Human Foot.—A grant from the Henry B. Loomis Fund at Yale University for the promotion of research work in medicine, awarded to the department of surgery, has been used for special instruments designed for investigating the mechanics of the human foot and its disorders. The study will be conducted by Dr. Dudley J. Morton, instructor in surgery, and will attempt (1) to estimate by mechanical means the normal ratio of weight distribution to the chief bearing points of the feet; (2) to learn the variations in that ratio as associated with structural or postural changes in the feet or other parts of the body; (3) to study the effects of neurologic conditions on the equilibrium through incoordination of muscle action and other factors; (4) to devise a mechanical method of foot examination that will eliminate the personal element, and (5) to obtain a better understanding of the mechanics of the foot as a basis for progress in the treatment of foot disorders.

ILLINOIS

Chiropractor Arrested—E. E. Nordeen, a chiropractor of Dallas City, was arrested, July 16, it is reported, on a charge of practicing without a license, and was held under $300 bond.

Establishing County Health Departments.—Surg. Thomas Parran, Jr., U. S. Public Health Service, has been directed to proceed from Springfield to points within the states of Illinois and Iowa, during the fiscal year 1926, for the purpose of cooperating with state and local authorities in the establishment and supervision of whole-time county health departments.

Smallpox Map.—A county map of Illinois has been prepared by the state department of health to show the number and location of smallpox cases that occurred in the first five months of this year. This spot map showed only twenty-nine counties in which smallpox had not occurred. Madison, St. Clair and Alexander counties are filled with dots, and there is a considerable number in Pulaski, Union, Shelby, Douglas, Macon, Vermilion, Will, Ogle, Lake and Cook counties. The disease appears to be scattered throughout the state.

Health in Tornado Area.—An organization consisting of three physicians, two nurses, a bacteriologist and other assistants were still functioning in the tornado district in the southern part of the state, July 1.——Smallpox recently broke out at eight different points in the tornado area, and after about 10,000 persons had been vaccinated the area was reported to be relatively free of smallpox.——More than 10,000 persons in the tornado zone have been immunized against typhoid, the local physicians cooperating with the state health department in doing this work gratuitously.

"Dr." Beach Arrested Again.—"Dr." Perley O. Beach, Pittsfield, was arrested, July 9, on a charge of "unlawfully treating human ailments without having first secured a license." According to the Pittsfield *Republican*, Beach has practiced "drugless healing and cures" for the last twenty years in Calhoun and Pike counties at Pearl, Mount Sterling, Hersman, Versailles, Henry, Rock Island, Pittsfield and numerous other Illinois towns. He is a representative of no school of medicine but, to use his words, is "a wonder as to the human body." Among his claims are "the ability to diagnose human ailments by means of the pulse" and to "x-ray teeth with his hand." He claims to have restored "palsied arms and stiffened limbs." Beach's ambition is to found a college some day where he may impart to students knowledge "which is today possessed by no other person than himself." Beach was arrested about five years ago on a similar charge, but the grand jury found "no bill" and the case was dismissed.

Chicago

Society News.—At a meeting of the Chicago Urological Society, June 4, Dr. Harry B. Culver was elected president; Dr. Vincent J. O'Conor, vice president, and Dr. Harry C. Rolnick, secretary-treasurer.

Milk Commission Entertains Physicians.—The Chicago Medical Society Milk Commission invited physicians to free trips to the Wisconsin dairy farms, July 15 and July 29, to inspect the conditions under which certified milk is produced.

INDIANA

Society News.—Dr. Robert H. Herbst, Dr. Hugh T. Patrick and Dr. Joseph Brennemann, all of Chicago, addressed the Muncie Academy of Medicine in June on "Diverticulum of the Bladder," "Four Everyday Headaches," and "Vitamins and the Baby," respectively.

Physician Cited.—Dr. Harry R. Spickermon, Muncie, has been cited by the state medical board to appear at the meeting, August 28, it is reported, to show cause why his license should not be revoked. Dr. Spickermon was recently convicted of violating the Harrison Narcotic Law (THE JOURNAL, July 11, 1925, p. 121).

School Buildings Condemned.—At a regular meeting of the state board of health, Indianapolis, July 8, seven public school buildings in Wells County and six others located in Pike, Madison, Martin and Sullivan counties were condemned on account of insanitary conditions, and their use for school purposes will be prohibited until these conditions have been improved.

Health Building Presented to Evansville.—Mr. and Mrs. Joseph B. Graham, Evansville, have announced, it is reported, the gift of a building to be known as the Graham Health Center, to be used for the Babies Milk Fund Association and as a community center. Mr. and Mrs. Graham will move to Detroit, and the gift is an expression of their regard for their old home city.

Indianapolis Sewage Plant.—The new Indianapolis sewage purification and disposal plant, which was recently put in operation, is, according to the *Bulletin of the Indiana State Board of Health*, the largest of its kind in the world, costing with the necessary sewer construction about $3,000,000. Dr. Karl Imhoff of Essen, Germany, sanitary engineer, was present at the opening of the plant.

Making Immigrants Chiropractors.—The *Journal of the Indiana State Medical Association* says that it has been announced in the newspapers that the Ross School of Chiropractic, Fort Wayne, has been designated officially by the U. S. Department of Labor as an immigrant school and that foreigners coming to the United States to study will be allowed to land without regard to the immigration quota when they are to be enrolled in that school.

Trachoma in Indiana.—The Indiana State Board of Health has made an investigation of trachoma in that state covering a period of more than two years, including all the state juvenile institutions, most of the orphan homes in every part of the state, an examination of the eyes of hundreds of school children in various parts of the state and an investigation of all reported outbreaks of trachoma. The surveys and examinations in every case have been made by experts from the U. S. Public Health Service. Not a case of trachoma was found in the state institutions, only one undoubted case and two possible cases in the orphan homes and no undoubted cases in the investigation of reports of outbreaks of the disease. The state board of health is therefore prepared to say that trachoma is not prevalent in the schools of Indiana nor among the general population.

Who Pays the Bills at Riley Hospital?—The *Indianapolis Medical Journal* says that certain counties in the state do not seem to understand who pays the bills at the Riley Memorial Hospital. The hospital is not in a general sense a free hospital, although large bequests have been made. It receives compensation for patients treated. The law provides that the judge of any circuit, criminal or juvenile court may commit to the hospital any child under 16 years of age having a legal settlement in the county when a petition for commitment is filed and the parent is not able to defer the expense of treatment. Any citizen may file a petition. A

hearing is required, and if there is a question as to the probable benefit of treatment, he may order an examination by physicians. If the child is found a proper subject for treatment, the clerk of the court makes the application, and the cost of care and treatment shall be paid by the county in which the child has a legal settlement. No compensation is to be allowed to the physician for treating the patient other than that paid him by Indiana University.

IOWA

Effect of Potassium Iodid on Swine.—The Iowa Agricultural Experiment Station at Ames has been feeding potassium iodid in the ration to young growing pigs for the last three years and has compiled a bulletin showing the result of this work and containing maps that give the relative distribution of simple goiter in man in the United States, the prevalence of exophthalmic goiter, and the iodid content of drinking water in the various sections of the country. A copy of the bulletin, which is known as Research No. 86, may be obtained by addressing the Bulletin Section, Ames. It appears that the swine increased their rate of growth about 10 per cent. as measured by weight and increased the dimensional growth in height, length and leg circumference as a result of the feeding experiment.

Society News.—The Twin Lakes District Medical Society held a diagnostic clinic, July 16, at North Twin Lake, Rockwell City, at which about 175 physicians who were in attendance voted to repeat the clinic next year. Dr. Benjamin C. Hamilton, Jefferson, was made president-elect, and Dr. Paul W. Van Metre, Rockwell City, secretary-treasurer. Among the speakers were Dr. Harold Gifford, professor emeritus of ophthalmology, University of Nebraska College of Medicine, Omaha; Dr. Samuel T. Orton, professor of psychopathic diseases, State University of Iowa College of Medicine, Iowa City; Dr. Charles S. McVicar, Mayo Clinic, Rochester, Minn.; Dr. Jennings C. Litzenberg, professor of obstetrics and gynecology, University of Minnesota Medical School, Minneapolis; Dr. Edward A. Oliver, associate professor of dermatology, Rush Medical College, Chicago, and Dr. Merrill M. Myers, president of the Iowa Heart Society.

KANSAS

Personal.—Dr. Robert M. Isenberger has been appointed associate professor in the department of physiology and pharmacology at the University of Kansas School of Medicine.——Dr. Frank C. Neff was recently elected president of the American Association of Teachers of Children's Diseases.

Chiropractor Guilty of Bank Robbery.—Morrill E. Gebhardt, Wichita, pleaded guilty, July 11, to robbing the Cheney State Bank, it is reported, and was sentenced by Judge Sargent of the district court to serve from ten to twenty-one years, at hard labor, in the penitentiary at Lansing. Gebhardt is said to have confessed previously to robbing other Kansas banks.

LOUISIANA

Ban on Whisky.—The Rapides Parish police jury defeated the ordinance, July 13, by a vote of ten to one, which would have repealed the ordinance adopted recently prohibiting physicians of the parish from issuing liquor prescriptions. A committee of the local medical society appeared before the jury and urged that body to repeal the ordinance.

Centelever Escapes from Carville.—Willard Centelever, a patient at the government leprosarium at Carville, has escaped again, it is reported. Centelever escaped from the hospital last year and appeared several days later in a hotel in Washington, D. C. The officer in charge of the hospital stated, it is reported, that the escape carries with it no menace to persons with whom Centelever may come in contact.

Addresses on Mental Health.—Dr. George K. Pratt of the National Committee of Mental Hygiene gave a series of addresses last week in New Orleans on the importance of cultivating mental health in children and young people. Dr. Pratt spoke to the students of Loyola and Tulane universities at a public meeting in Gibson Hall, Friday night, and was entertained at luncheon at the Orleans Club by the Louisiana State Mental Hygiene Society.

Personal.—Dr. Stanley H. Osborn, state health officer of Connecticut, and Dr. Samuel R. McKelvey, Denver, who are touring the states for the International Health Board, spent July 14 in New Orleans. Dr. Osborn, with Dr. Oscar Dowling, state health officer of Louisiana, attended a mass meeting in Thibodaux, the purpose of which was to request the levee boards of adjoining districts to devise means to put fresh water from the Mississippi River into Bayou Lafourche. ——At a recent meeting of the board of administrators of Tulane University, Dr. Frederick W. Parham was elected a member to succeed Dr. John Callan, former president of the city board of health of New Orleans, who died about a year ago.——Dr. Francis Michael Smith, Franklinton, director of the Washington Parish Health Unit, has accepted a position in Arkansas, where he will take charge of health work of a county and city.

MASSACHUSETTS

Personal.—It is reported that Dr. Raphael Isaacs, an instructor in medicine, Harvard University Medical School, Boston, has won the Alvarenga Prize of the College of Physicians of Philadelphia, which is given annually for the best essay on a medical subject. Dr. Isaac's subject was "The Nature of the Action of Roentgen Rays on Living Tissue."

Hospital News.—Plans are being prepared for an addition costing $400,000 to the Wesson Maternity Hospital, Springfield.——Construction and alterations costing $300,000 have been started at the old Sturdy Memorial Hospital, Attleboro. ——Lynn Hospital, Lynn, has awarded a contract for a new $300,000 addition.——The Boston Floating Hospital opened its thirty-second season, June 30, and established a new departure in accepting certain selected orthopedic cases for intensive heliotherapy.

Tercentenary Celebration.—The Plymouth District Medical Society, Plymouth, recently held a tercentenary celebration in memory of Dr. Samuel Fuller, who came over in the *Mayflower* and was a practicing physician among the Pilgrims. The society met at the Jordan Hospital for clinical demonstrations and to hear an address by Dr. Thomas H. McCarthy, Brockton, on "The Educational Value of the Medical Society." They, in company with their families, then motored to the Mayflower Inn, where a banquet was served. Dr. Francis D. Donoghue, Boston, gave an address on "Pioneer Medical Practitioners of the Old Colony." Dr. James S. Stone, president of the Massachusetts Medical Society, also addressed the meeting.

MICHIGAN

Frederick K. Stearns Memorial Fellowship.—The fellowship in medicine established at the University of Michigan by Frederick Stearns & Company, Detroit, in honor of the late Frederick Kimball Stearns, will be devoted during the coming year to researches on insulin and insulin therapy.

Society News.—Lapeer County Medical Society held its annual picnic at Dryden, July 9, the guests of honor being Dr. Harley A. Haynes, director of the University Hospital, Dr. Max M. Peet and Dr. James D. Bruce, director of internal medicine at the state university, whose subjects were, "The New Hospital," "Brain Injuries," and "Diseases of the Thyroid," respectively.

Infant Mortality Decrease.—Twenty-one of the twenty-eight cities in Michigan with a population of 10,000 or more showed a decrease in the infant mortality rate in 1924, and in the state as a whole the mortality decreased from 80.4 per thousand births in 1923 to 72.2 in 1924, the latter rate being the rate for the entire birth registration area of the United States. Among the cities for Michigan noted by the Health News Service of the state department of health, the lowest infant mortality rate for 1924 was in Adrian (43) and the highest in Monroe (144).

MINNESOTA

Dr. Guyer Secretary of Tuberculosis Division.—Dr. Leo G. Guyer, Nopening, recently medical director of the Nopening Sanatorium, has been appointed executive secretary of the tuberculosis division of the department of public building, state board of control, to succeed Dr. Robinson Bosworth, who resigned to take charge of the Municipal Tuberculosis Sanatorium at Rockford, Ill.

MISSOURI

A Million for Washington University. — It has been announced that Charles Rebstock has given $1,000,000 to Washington University, St. Louis.

Medical Fraternity House.—The Alumni Association of the Alpha Kappa Kappa Fraternity of the St. Louis University Medical School has purchased a fifteen-room house at

3843 West Pine Boulevard, St. Louis, which will be remodeled for permanent quarters for the local chapter of the fraternity.

Laboratory Service at University Discontinued.—It has been found necessary on account of the shortage of funds for the maintenance of the state university during the current biennial period to discontinue the public health laboratory service, effective July 1. The state board of health maintains a laboratory at Jefferson City, to which material formerly sent to the public health laboratory should be forwarded for examination and report.

Court Orders Licenses Restored.—Circuit Judge Miller issued an order for the state board of health, July 15, to restore the licenses of Drs. Anne Golstein and Thomas R. Moore, which were revoked by the board following hearings at St. Louis last spring. The physicians contended, it is reported, that the charges of falsifying educational credentials were not sustained, that incompetent testimony was introduced against them, and that competent evidence in their favor was not admitted.

Educational Campaign.—The first of a series of meetings to educate the public in matters of hygiene and the prevention of disease was held at Rolla, July 24, under the auspices of the Missouri State Medical Association and the state board of health. Among those listed to speak were Governor Baker; Dr. Emmett B. North, St. Louis, president of the state medical association and also of the state board of health; U. S. Senator George S. Williams, St. Louis; Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, and Dr. James Stewart, state health commissioner.

Kansas City Requires Examination of Food Handlers.—A recently passed ordinance in Kansas City requires that every person who handles foodstuffs intended for public consumption undergo a physical examination every ninety days. The examination must be made by registered physicians in good standing and a report of the examination filed with the health department. Dr. Herman E. Pearse, city health director, has requested all physicians of the city to register with the health department in order to obtain an accurate list of reputable practitioners and a record of their professional status.

NEW YORK

Visiting Sanitarians.—During June the following sanitarians visited the New York State Department of Health to study the work: Dr. Phra Boriraksh, Siam; Dr. Amalia Simec, Jugoslavia; Dr. Howard C. Stewart, state department of health, Nashville, Tenn.; Dr. N. Koitcheff and Dr. R. Radkoff, both of Bulgaria.

Inspection of Summer Camps.—The division of sanitation of the state department of health, July 1, began an inspection of organized summer camps for the 1925 season, and an endeavor will be made to inspect camps that were not investigated during the 1924 season. Advice will be given camp authorities on water supply, sewage, garbage and refuse disposal and general problems in camp sanitation. The state commissioner of health has also notified health officers to make regular inspections of the so-called "hot dog stands" and other wayside eating establishments, and has called the attention of the town and village boards of health to the need of regulations for these places and appended an outline of points to be covered in making inspections.

Survey of Jail Prisoners.—According to a three year survey that has been completed by a joint committee representing twelve bodies interested in prison reform, 75 per cent. of the prisoners confined in the county jails and penitentiaries of New York state are suffering from mental and physical disabilities and disorders that are fundamental factors in their social failures and careers of crime. The report is based on a study of thirty-three penal institutions outside New York City. The committee proposes that county jails be replaced by farms, clinics and other institutions at which it will be possible properly to classify and to handle offenders, basing this classification on their needs rather than on the offenses of which they have been convicted.

Potts Memorial Hospital.—The cornerstone of the main building of the Potts Memorial Hospital at Livingston was laid, June 26, with appropriate ceremonies. The hospital will be for tuberculous patients who may recover, and they are to be given sheltered employment preparatory to reentering the normal channels of industry and professional work. Mrs. Ida C. Potts, who died in 1921, provided $150,000 in her will as a building fund for the institution. The idea of establishing a tuberculosis sanatorium for "sheltered employment" was suggested by the National Tuberculosis Association, and Dr. Harry A. Pattison, supervisor of medical service of that association, has been granted a leave of absence to serve as medical director of the hospital during its early period of development.

Resolution on Convalescent Care. — In view of the announcement of a gift by Mrs. Harriet M. Arnold of $1,000,000 and 200 acres of land at Greenwich, Conn., to St. Luke's Hospital, New York, to build and endow a home for convalescent patients, the following resolution, adopted at a conference of representatives of convalescent homes and social agencies, is of general interest:

Resolved, First, that this conference of representatives of convalescent homes and social agencies assembled at the Academy of Medicine, June 4, express its thanks for the constructive work done by the public health committee of the New York Academy of Medicine in formulating for the first time in the annals of medical history of this city standards of medical care and management of homes for convalescent patients, as these standards will prove of effective service to all of the institutions;

Secondly, that we endorse in general the principles in the report of the public health committee; and,

Thirdly, that we heartily approve the suggestion that the Hospital Information Bureau should operate the central reference office on convalescent problems in cooperation with the public health committee of the New York Academy of Medicine, the Hospital Social Service Association, the Sturgis Fund of the Burke Foundation, the Children's Welfare Federation and all other agencies interested in the work of promotion of proper convalescent care in this city, and express the readiness on the part of all those assembled to help in making the bureau an effective agent in the field of convalescent care.

New York City

Fund for Nurses' School.—Mrs. Stephen V. Harkness has given $250,000 to complete the $1,000,000 fund raised by the Presbyterian Hospital nurses for the new school of nursing at the Presbyterian-Columbia Medical Center. Mrs. Harkness' cash gifts to the institution now total $800,000.

Personal.—The degree of M.D. has been given to Dr. Alexander Bruno of New York by the University of Paris in recognition of his work in France while serving as associate director of the Rockefeller Commission on Tuberculosis in that country.——Dr. David E. Hoag, who was recently ordered to active duty for a period of intensive training as an officer in the Medical Reserve Corps at Fort Wright, Fisher's Island, N. Y., returned July 22.

Diphtheria Commission. — The Diphtheria Commission appointed by the city commissioner of health held its first meeting, June 18. Those present were Drs. William Ropes May, Harold R. Mixsell, Shirley W. Wynne, William H. Park and Louis I. Harris. Dr. Arthur W. Bingham was elected chairman, and Dr. Louis I. Harris, secretary, of the commission. A campaign will be organized to reduce the morbidity and mortality rate from diphtheria. Activities will be concentrated in the Bellevue-Yorkville district.

NORTH CAROLINA

Society News.—Dr. Stewart R. Roberts, professor of clinical medicine, Emory University, addressed the Mecklenburg County Medical Society recently on "The Size of the Heart and Its Relation to Disease."

Hospital News.—Dr. Furman Angel, Franklin, it is reported, has purchased the Dr. Wiley A. Rogers place and will conduct a hospital.——The directors of the Tuberculosis Sanatorium, at Sanatorium, have authorized the construction at once of a new nurses' home.

Physician Cited.—Dr. Edwin H. Bowling, Durham, was summoned to appear before the state board of medical examiners, Wilmington, July 22, to show cause why his license should not be revoked. Dr. Bowling was recently charged in federal court, it is reported, with violation of the Harrison Narcotic Law.

NORTH DAKOTA

Joint District Society Meeting.—The Devils Lake District Medical Society and the Northwestern North Dakota Medical Society held a joint meeting, July 22, at the State Tuberculosis Sanatorium at Dunseith. Following the scientific program a dinner was served at the hospital, then a number of the physicians with their families drove to Ninette, Manitoba, to attend a meeting of the Brandon and Southwestern Manitoba Medical Association, July 23, at the Manitoba Tuberculosis Sanatorium, where the program was conducted under the management of Dr. David A. Stewart, superintendent of the sanatorium. There were talks on heliotherapy, bone and joint tuberculosis, treatment of pulmonary tuberculosis, septic conditions of the chest often confused with tuberculosis, and tuberculosis in family groups. Dinner and supper were served by the sanatorium to about 100 guests.

OHIO

Superintendent Appointed.—Dr. Karl H. Van Norman has resigned as superintendent of the Charles T. Miller Hospital, St. Paul, Minn., to become superintendent of the Western Reserve University Hospital group at Cleveland.

New Chief of Industrial Hygiene.—*Ohio Health News* reports that Dr. Daniel J. Kindel, Cincinnati, has accepted the appointment as chief of the division of industrial hygiene in the state department of health, to succeed Dr. Nelson C. Dysart, now with the Columbus Health Department.

Deaths in Fifteen Years.—A compilation of the death certificates filed with the state department of health during the last fifteen years shows a total of 1,065,497, of which 573,470 were males and 492,027 females. More deaths occurred during March than in any other month, and the fewest occurred in June, then September, July and August, in order of decrease. There has been a steady increase in the number of deaths of persons over 95 years of age from 144 in 1910 to 207 in 1924, with the number of females predominating in each year. The age period, 70 to 74, claims more deaths than any other period except that of infancy (under 1 year of age). During the fifteen year period, 153,271 children died before their first birthday. This is 14.3 per cent. of all deaths. There has been a decrease in the infant death rate from 17.4 in 1910 to 12.5 per cent. in 1924. There has also been a decrease in the number of deaths of foreign born persons from 11,906 in 1910 to 11,111 in 1924.

PENNSYLVANIA

Chester Did Not Have Dengue.—The recent epidemic in Chester, which was reported to have been confirmed as dengue, was a milk-borne infection of the streptococcic type, and not dengue. The *Atlantic Medical Journal* says that there were about 400 cases in the outbreak and that the clinical picture was so strikingly like dengue in every way that it attracted the attention of the U. S. Public Health Service, which assigned Dr. Charles Armstrong to make an investigation. It was found that all the patients had been drinking raw milk from a certain dairy and that the proprietor and several others on the dairy farm were included among the victims of the epidemic. Cultures showed streptococci in the milk. While, from a "bedside point of view," the picture was that of dengue, it was shown that there were practically no mosquitoes at the time of the outbreak, that several members of one family would be affected while neighbors on either side, or sometimes in the same building, were exempt, and that the leukopenia which occurs in dengue was not present; there was in many cases a decided leukocytosis.

Legislative Activities.—The president of the Medical Society of the State of Pennsylvania, Dr. John Norman Henry, summarizes the work done by representatives of the society during the last legislative session. He says that the "one-board bill," which the last session of the state medical society had proposed having been defeated, the legislative program for the year was referred to the board of trustees, which agreed that no constructive legislation would be attempted by the society to regulate those desiring to practice, but that opposition would be made to bills proposed giving further license to osteopaths and licensing chiropractors and naturopaths. A few medical men appeared at hearings on these various cult bills, whereas hundreds of men and women of the chiropractic following particularly were there. However, the three cult bills were defeated. Dr. Henry concludes that the campaign showed that it is possible to convince members of the legislature that the aims of the medical profession are above and beyond commercial measure, and that if the physicians throughout the state will talk with their representatives in the legislature, they will meet a receptive attitude when a really constructive bill is brought up.

Philadelphia

Jewish Charity Fund.—The Federation of Jewish Charities will expend during the current year about $1,400,000, which will be dispensed to fifty charitable and philanthropic organizations.

Personal.—Dr. Chevalier Jackson has been honored by the French government with membership in the Legion of Honor. Dr. Jackson is now in France lecturing at the University of Paris on bronchoscopic work.

Teaching Hospital Dedicated.—The new wing of the Samaritan Hospital, which is the teaching hospital of Temple University, erected at a cost of $560,000, was dedicated, June 19, on which date the School of Medicine of Temple University held its annual Alumni Day celebration. The hospital now has a capacity of 305 beds.

Health in Small Plants.—Dr. William J. McConnell, Pittsburgh, has been appointed to develop a new industrial health plan for the Philadelphia Health Council, under which the protection of the health of employes in small plants will be possible. Dr. McConnell, who has been attached to the experimental research station of the United States Bureau of Mines at Pittsburgh, will assume his new duties, September 1, with the title of medical secretary of the Health Council. The new plan calls for the grouping together of the employes of the small establishments in the city into units of 1,000 each.

TENNESSEE

Personal.—Dr. Benjamin V. Howard, Knoxville, has been appointed a member of the state board of nurses' examiners. ——Dr. Beverly Douglas, Nashville, has been awarded the degree of doctor of science by the University of Lyons Faculty of Medicine, France, for work on the treatment of acute intoxication and infection.

Vanderbilt University School of Medicine.—The new buildings of Vanderbilt University School of Medicine are nearing completion and will be occupied at the opening of the next session, September 24. The reorganization of the school is the result of about five years' work and the expenditure of about $3,000,000 for new buildings. The faculty has been augmented by the addition of twenty or more professors, associate professors, assistant professors, lecturers, instructors and assistants. All of the former faculty, it is reported, will continue with the school. The main building houses both the hospital and the medical school under one roof. The hospital has a capacity of 185 beds and the entire plant is arranged to accommodate 200 students. A recent announcement contains the names of all the members of the faculty and the various faculty committees.

The names of those holding professorships follow: G. Canby Robinson, M.D., professor of medicine, dean; George H. Price, M.D., professor emeritus of diseases of the eye, ear, nose and throat; Barney Brooks, M.D., professor of surgery; Glenn E. Cullen, Ph.D., professor of biologic chemistry; Robert S. Cunningham, M.D., professor of anatomy; Walter E. Garrey, M.D., professor of physiology; Ernest W. Goodpasture, M.D., professor of pathology; Paul D. Lamson, M.D., professor of pharmacology; Waller S. Leathers, M.D., professor of preventive medicine; Duncan Eve, M.D., professor of clinical surgery; John A. Witherspoon, M.D., professor of clinical medicine; William H. Witt, M.D., professor of clinical medicine; John T. Altman, Sr., M.D., professor of clinical obstetrics; Richard A. Barr, M.D., professor of clinical surgery; Worcester A. Bryan, M.D., professor of clinical surgery; Owen H. Wilson, M.D., professor of clinical pediatrics; Sydney S. Crockett, M.D., professor of clinical neurology and psychiatry; Andrew N. Hollabaugh, M.D., professor of clinical obstetrics; James M. King, M.D., professor of clinical dermatology; William D. Haggard, M.D., professor of clinical surgery; Robert Caldwell, M.D., professor of clinical surgery; Perry Bromberg, M.D., professor of clinical urology; Marvin M. Cullom, M.D., professor of clinical ophthalmology and otolaryngology, and Henry E. Fraser, Captain, M. C., U. S. Army, professor of military science and tactics.

VIRGINIA

Personal.—Dr. Cora Z. Corpening has resigned from the staff of the Lake View Hospital, Suffolk, and gone to Virginia Beach to resume private practice.

Society News.—The Norfolk County Medical Society, has elected Dr. Stanley H. Graves president; Dr. Joshua Warren White, first vice president, and reelected Dr. Lockburn B. Scott, secretary-treasurer. These officers reside in Norfolk.

Shriners' Hospital at Richmond.—The Imperial Shrine Council which met at Los Angeles in June, selected Richmond as one of the cities for a hospital for crippled children. The initial structure will cost about $150,000 and it will be expanded by degrees. The site is to be selected by a committee to be appointed by the council.

WASHINGTON

Hospital News.—Dr. Dale O. Nugent has purchased the Centralia General Hospital for $40,000.——The Seattle General Hospital, Seattle, which recently purchased a city block as a site for a new building, is conducting a campaign for $500,000.

Society News.—Dr. John Earl Else, Portland, June 8, addressed the Whitman County Medical Society, Colfax, on "The Present Status of our Knowledge of Goiter."——Dr.

Frederick A. Slyfield, Seattle, recently addressed the Pierce County Medical Society on "Easy Methods of Diagnosis for the General Practitioner."

New State Director of Health.—Dr. Albert E. Stuht, Spokane, assumed the duties of director of the state department of health, July 1, succeeding Dr. Paul A. Turner, who resigned to become deputy commissioner of health of Seattle. Dr. Stuht was for six years county physician and county health officer at Spokane, and formerly a member of the state board of health.

Personal.—Dr. F. J. Delaney, Port Townsend, has been appointed state health officer, to succeed the late Dr. J. C. House.——Dr. Edward L. Brinson has been reappointed county health officer of Whatcom County for a term of two years.——Dr. Frank H. Collins, Goldendale, has been appointed health officer for Klickitat County.——Dr. Erestus T. Hanley has been appointed commissioner of health of Seattle for the unexpired term of the late Dr. George N. McLoughlin.——Dr. John M. Henderson, Walla Walla, has resigned from the staff of the Veterans' Hospital of that city.——Dr. G. H. T. Sparling has been reappointed health commissioner of King County.——Dr. William D. Smith, Everett, has been elected president of the Providence Hospital staff.——Dr. Manch N. Garhart, Seattle, has been reelected president of the Seattle Rod and Gun Club.——Dr. Charles S. Bumgarner, Davenport, has been appointed county physician and health officer.

WISCONSIN

Society News.—Dr. Edward L. Miloslavich, director of the department and professor of pathology and bacteriology, Marquette University School of Medicine, Milwaukee, addressed the Austin-Flint Cedar Valley Medical Society, New Hampton, Iowa, July 8, on "Postmortems from the Standpoint of the General Practitioner."

Basic Science Board.—The Wisconsin Basic Science Board, created by the last legislature to examine all candidates for licensure in the basic sciences, anatomy, physiology, pathology and diagnosis, preliminary to their examination by the state board of medical examiners, consists of R. N. Bauer, professor of chemistry, Marquette University, Milwaukee, president; Prof. M. S. Guyer, department of zoology, University of Wisconsin, Madison, secretary and Prof. Frank G. Hall, department of biology, Ph.D., Milton College, Milton, treasurer (The Journal, June 27, p. 2011).

CANADA

Personal.—Dr. Herbert R. Corbett has resigned from the staff of the Nova Scotia Sanatorium, Kentville, and accepted a position on the staff of the Irene Byron Sanatorium, Fort Wayne, Ind.

Hospital News.—The new St. Mary's Hospital at Inverness, N. S., was recently dedicated.——The Montreal unit of the Shriners' Hospital was recently opened. It will accommodate fifty children and is intended for patients who can be relieved of deformities through surgical treatment. It is situated next to the Children's Memorial Hospital on Cedar Avenue, where about 100 children suffering from similar conditions are cared for.

Chiropractor Sells Morphin.—Hardy McNaughton, a chiropractor of Toronto, pleaded guilty, July 15, it is reported, to a charge of being in illegal possession of morphin, and was fined $200 and costs "or six months plus six months without the option of a fine," which period would be followed by two years of police supervision. A man having a marked bill in his pocket was sent to McNaughton's place to buy morphin. The bill was later recovered from the chiropractor's pocket while the messenger returned with the morphin.

GENERAL

National Conference on Pharmaceutical Research.—The fourth annual meeting of the National Council on Pharmaceutical Research will be held at Des Moines, Iowa, August 22. Following the reports of delegates from the fifteen affiliated organizations, there will be a general discussion on (*a*) census of research, (*b*) graduate students in pharmacy and their research work, and (*c*) research topics.

Directory of Health Officers.—The annual directory of city health officers in cities of the United States having 10,000 or more population, is published in *Public Health Reports*, July 3. Those who are full-time health officers are indicated by an asterisk, and a whole-time officer is defined as one who does not engage in the practice of medicine or any other business but devotes all his time to official duties.

Is Chlorinated Lime Dangerous?—In The Journal, April 26, 1924, a request was made for reports of cases of personal injury from chlorinated lime. At that time laws had been passed in several states requiring household packages of chlorinated lime to be labeled poison, and manufacturers and distributors were contending that poison labels were unnecessary, as accidents from the household use of chlorinated lime did not occur. No report of any such accident has been received. On the record as it now stands, therefore, the manufacturers and packers would seem to be amply justified in urging the repeal of the laws referred to. What are the facts? Reports of accidents, if there have been any, should be sent to the Bureau of Legal Medicine and Legislation, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

Suicide Among Wage Earners.—Suicide is two and one-half times as frequent among men as among women in the wage earners of United States and Canada, according to the *Statistical Bulletin* of the Metropolitan Life Insurance Company. This ratio relates to all ages combined; but when the data are studied by age periods, the ratio of death of males to those of females varies greatly and the preponderance of suicide among males increases perceptibly with advancing age. One age period (15 to 19 years) stands out from all the rest as the only time of life in which suicide is more common among females, and in this period in 1923 there were nearly two and one-half times the number of suicides among the females insured in this company as among the males. These data relate to white wage earners only. Suicide is much less frequent amo g colored persons.

Biologic Assay Standards.—The Bureau of Chemistry, U. S. Department of Agriculture, is now prepared to supply standard substances that conform to the biologic assay requirements of the Tenth U. S. Pharmacopeia, and manufacturers are invited to apply, indicating the amount of material they desire against which to check their biologic assays. The new Pharmacopeia will state in the preface that biologic assays have now been made compulsory for a number of important drugs and preparations, and to facilitate the adoption of these standards and to provide a greater degree of uniformity in the application of these assays, the officials of the Bureau of Chemistry have indicated their willingness to supply substances conforming to the new standards. This service is the result of cooperation between the Committee of Revision, the manufacturers and the Bureau of Chemistry.

Society News.—At the annual meeting of the American Orthopedic Association, Washington, D. C., May 5-6, Dr. Michael Hoke, Atlanta, was elected president; Dr. James T. Watkins, San Francisco, president-elect; Dr. John Dunlop, Los Angeles, vice president; Dr. John L. Porter, Evanston, Ill., treasurer, and Dr. DeForest P. Willard, Philadelphia, secretary.——The annual meeting of the Medical Society of the Missouri Valley will be in St. Joseph, Mo., September 30-October 2, under the presidency of Dr. John W. Martin, Des Moines, Iowa. Diagnostic clinics will occupy the morning hours and a series of symposiums by various state universities the afternoons. The annual dinner will be at the Hotel Robidoux, Thursday evening, and a smoker will be held Wednesday evening, with the Buchanan County Medical Society and the St. Joseph Clinical Society acting as hosts. The secretary is Dr. Charles W. Fassett, 115 East Thirty-First Street, Kansas City, Mo.

Appointments of National Research Council Fellows.—The chairman of the medical fellowship board, National Research Council, Washington, D. C., reports the following appointments: Homer M. Smith, D.Sc., for the last two years a fellow in medicine of the council at Harvard University Medical School, Boston, has been appointed acting professor of physiology at the University of Virginia; Clifford S. Leonard, Ph.D., a fellow in medicine of the council since 1923 at Yale University, has been appointed instructor in pharmacology at Yale; Dr. Minnie Jane Sands, since 1923 a fellow in medicine of the council at the Royal Infirmary, Edinburgh, at Cambridge, England, and at Western Reserve University, Cleveland, has been appointed professor of physiology at the Women's Medical College, Phliadelphia, and Dr. Louis N. Katz, for the last year a fellow in medicine of the National Research Council studying at the University of London, has been appointed senior instructor in physiology, Western Reserve University School of Medicine, Cleveland.

Health of Indians.—The first organized effort to improve the health of the American Indians was made in 1873, when a division of medicine and education was established in the Bureau of Indian Affairs. The health personnel of the U. S. Indian Service today comprises 203 physicians, 105 nurses, 292 hospital employees, sixty-nine field matrons, six field dentists, seven special physicians, one medical supervisor and one chief medical supervisor. The first hospital for Indians, according to the bureau of Indian affairs, was established at Carlisle, Pa., in 1882. There were eighty hospitals for Indians in 1924, thirty-four of which were agency hospitals, thirty-seven school hospitals, one asylum for the insane, seven sanatoriums and one sanatorium-school. The total capacity of these hospitals is 2,475. The first specific health appropriation for the Indians was made in 1911 and amounted to $40,000. The annual appropriation in the intervening years has gradually increased until in 1925 it was $500,000; there is expended in addition, for the health of Indians, tribal funds, Indian moneys and other appropriations when available and legally applicable.

Smallpox in India, Russia and the United States.—The American Association for Medical Progress notes that in 1923, the last year for which complete data are available, the United States was surpassed in the number of cases of smallpox only by India and Russia. Certain state laws which require that school children shall be vaccinated also exempt from vaccination those who have a certificate from some practicing physician stating that such person is not a fit subject for vaccination. There does not seem to be any rule as to what constitutes a cause for exemption. The experience of Detroit in 1924 throws light on this problem. There were over 800,000 vaccinations in a comparatively short period without any serious consequences. More than 3,000 at the Herman Keifer Hospital in that city were vaccinated without any untoward results, and among these were 425 who had diphtheria, 644 who had scarlet fever, 368 who had tuberculosis, 52 with measles, 30 with mumps, 90 with erysipelas, 104 with infantile paralysis, 35 with whooping cough and 21 with chickenpox. In addition, there were among them 773 mothers lying in and 676 infants.

Bequests and Donations.—The following bequests and donations have been announced recently:

The entire residuary estate of Dr. Nicholas R. Dann estimated now at about $50,000, will go, on the death of his widow and sister-in-law, to the New York Eye and Ear Infirmary.

St. Luke's Hospital, Woman's Hospital, Presbyterian Hospital and Long Island College Hospital, all of New York, $50,000 each under the will of the late Mrs. Marion Prentice Brookman.

The Nassau County Hospital, Farmingdale, N. Y., $2,000, and Mercy Hospital at Hempstead, $1,000, by the will of the late William F. Corwith of Hempstead.

The Harlem Eye, Ear and Throat Hospital, $1,000, by the will of the late Amelia Brady.

West Jersey Homeopathic Hospital, Camden, N. J., $100,000, and the Cooper Hospital, Camden, $50,000, by the will of the late William J. Cooper.

The New York Association for the Blind, $2,500, and the Polyclinic Hospital, New York, $1,500, by the will of the late Mrs. Martha G. Hervey.

The Walter Scott Free Industrial School for Crippled Children and the Lulu Thorley Lyons Home for Crippled and Delicate Children, Claverack, N. Y., $5,000, by the will of the late Mrs. James Merrihew.

The Melrose Hospital, Brattleboro, Vt., $1,000, by Ernst E. Plumb, Leyden, Mass.

The Central Maine General Hospital, Lewiston, $1,000; Children's Hospital, Portland, Me., $500; Maine Institution for the Blind, $500; Home for Aged Men, Portland, Me., $500, and one half of the residuary estate after various other bequests have been granted to the Central Maine General Hospital, by the will of the late Miss Eliza Jordan of New Gloucester, Mass.

The Anna Jaques Hospital, Newburyport, Mass., $500; the Homeopathic Hospital Association of Newburyport and the Newburyport Society for the Relief of Aged Men, each $500, and one third each of the residue after the payment of private bequests to the Anna Jaques Hospital and the Newburyport Hospital Association, by the will of the late Mrs. Clara A. Burley.

The Hackensack Hospital, Hackensack, N. J., $500 by the will of the late Otto H. Krause, a chemist of Mountain Lakes.

By the will of Miss Sophie Moen, Boston, $50,000 to the Memorial Hospital, Worcester, and $5,000 to the Old Ladies' Home of Worcester.

The Southampton Hospital, Southampton, N. Y., a $30,000 contribution by Col. Henry H. Rogers, to assist in constructing an addition to the School of Nursing and for its physiotherapy equipment.

Davier Memorial Hospital, LaHarpe, Ill., was recently bequeathed $2,500 anonymously with the stipulation that $2,000 should be used to purchase a roentgen-ray machine.

The New York Postgraduate Medical School and Hospital, $1,000, under the will of the late Mrs. Ellen F. Billings.

The Presbyterian Hospital, New York, $10,000, to endow a bed by the will of the late Miss Elizabeth Auchincloss.

The Union Hospital Association, New York, $162,161 and $81,330 each, to the Beth David Hospital, New York, the Bronx Society for the Prevention of Cruelty to Children, the Salvation Army, the Association for Improving the Condition of the Poor, and the Home for Aged of the Little Sisters of the Poor, by the will of the late John J. McKenna.

By the will of the late Margaret Dunmore her estate of $11,100 will go to the Chestnut Hill Hospital, Philadelphia, following the death of her husband and the death of A. M. Callahan, to whom the estate has been left in trust.

The Decatur County Memorial Hospital, Greensburg, Ind., $2,000, through the will of the late Louisa D. McLaughlin, Greensburg.

The Spencer Hospital Association, Spencer, Iowa, $5,000, by the will of the late Mrs. Charles E. Leach.

FOREIGN

Broadcasting Health Lectures.—The medical officer of Plymouth has just finished a series of talks on health broadcast by the British Broadcasting Company, which the *Medical Officer* considers the first occasion that a medical officer of health of a large town has given a series of radio talks. The subjects were "Health and Wealth," "The Care of Children," "Tuberculosis," "Flies," "Milk" and "Teeth."

Prize Essays on Maternal Mortality.—The Melbourne Permanent Committee for Postgraduate Work, which a year ago announced a prize of 150 guineas for the best essay on "The Causes and Prevention of Maternal Morbidity and Mortality," has received twenty-three essays which have been referred to the judges, and the announcement of the award is expected to be made in August. The University of Melbourne recently was given £10,000 by the trustees of the Edward Wilson Fund to endow research in the science of obstetrics, and a committee has been appointed to deal with the subject.

"Crisis in Medical Education in Bengal."—Under this head the *Indian Medical Gazette* notes that the General Council of Medical Registration and Education of the United Kingdom has withdrawn its recognition of the medical degrees of the Calcutta University because of refusal of the university to permit the inspector of medical education to inspect the final examinations. The position of the council seems to be that it has to satisfy itself as to the standards of the degrees which it recognizes, and if it is not permitted to make inspections the withdrawal of recognition naturally follows. The university, it is said, takes the position that the recognition of the degrees is a matter of reciprocity and does not mean inspection either of the colleges or of the examinations held by the university.

Personal.—Prof. R. W. Reid, who had held the chair of anatomy at the University of Aberdeen, Scotland, since 1899, has tendered his resignation.——Professor Giordini read a paper on "Production of Oxygen" at the ceremonies attending the laying of the corner stone of the chemistry institute at Bucharest during the recent international chemistry conference there.——The Spanish Achúcarro prize for distinguished work in the histology of the nervous system has been awarded this year to Prof. K. Schaffer, chief of the Budapest Institute for Research on the brain. This prize is awarded every two years alternately to a Spanish and a foreign histologist.——Sir John Bland-Sutton, president of the Royal College of Surgeons of England, was made a baronet on the king's birthday, and Dr. J. Robertson, professor of public health, University of Birmingham, England, was made a knight.——Sir John MacAlister, secretary of the Royal Society of Medicine since 1887, has resigned from that office on account of ill health.

Deaths in Other Countries

Dr. **Adolf Vossius,** emeritus professor of ophthalmology, Giessen, aged 71.——Dr. **J. Erőss,** professor of pediatrics at Budapest.——Dr. **W. Patzschke,** privatdozent for syphilitic affections of the mouth, Hamburg, aged 33.——Dr. **Max Stumpf,** former director of the midwives' school at Munich, aged 74.——Dr. **E. J. McWeeney,** professor of pathology and bacteriology, University College, Dublin, aged 61.——Dr. **Henry Corby,** professor of obstetrics and gynecology, University College, Cork, aged 77.——Dr. **Eric Sinclair,** Sydney, Australia, formerly inspector general of mental hospitals and president of the section of neurology and psychiatry at the Australasian Medical Congress, 1908, May 15, aged 65.

CORRECTION

Titles Omitted.—The following titles were omitted from the list of contents of the *American Journal of Physiology*, May, 1925, published in THE JOURNAL, July 11, p. 142: Blood Regeneration in Severe Anemia. II. Favorable Influence of Liver, Heart and Skeletal Muscle in Diet. F. S. Robscheit-Robbins and G. H. Whipple, Rochester, N. Y., p. 408; Blood Regeneration in Severe Anemia. III. Iron Reaction—Favorable—Arsenic and Germanium Dioxid Almost Inert. G. H. Whipple and F. S. Robscheit-Robbins, Rochester, N. Y., p. 419.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 17, 1925.

International Radiological Congress

The first International Radiological Congress, which was attended by about 350 delegates from all civilized countries, has been held in London and was in every way a great success. About two thirds of the members were physicians and the remaining third physicists. The Duke of Connaught and the minister of health welcomed the foreign delegates. The work of the congress was carried out in three sections, physics, electrotherapy and actinotherapy.

INTERNATIONAL UNITS AND STANDARDS FOR ROENTGEN-RAY WORK

Sir William Bragg, F.R.S., said that roentgen-ray standards are beset with difficulties because of the difference between quantity and quality, the difference between the amount of energy and the wave length that carried it, the scattering of rays and the consequent formation of new beams. Various countries had been working at the last problem and he was a member of a standing committee appointed by the roentgen-ray and physical societies to study the question. A standard must be largely a matter of compromise, and three grades could be set out: (1) determination of a scientific unit; (2) a standard apparatus for making comparisons, and (3) comparison of the results of treatment, entirely a hospital matter.

CANCER OF THE BREAST

Professor Wintz (Erlangen) said that the value of roentgen rays in cancer of the breast was still much disputed. He divided cases into three groups in which: (1) the tumor was restricted to the breast, movable and the glands were not involved; (2) the surrounding region was already infiltrated and the axillary glands were palpable; (3) the supraclavicular glands were palpable. Three years after treatment he obtained a percentage of clinical cures in Groups 1 and 2 combined of 77 per cent.; four years after, of 65.9 per cent.; five years after, of 48.5 per cent.; six years after, of 32.1 per cent., and seven years after, of 20 per cent.

THE ENCIRCLEMENT RADIUM TREATMENT

Mr. Sampson Handley described his encirclement method of radium treatment. Every aggregation of cancer cells had a definite life cycle, and after increasing in size for a varying period and at a varying rate tended spontaneously to undergo fibrotic changes. The center of a mass already degenerating or dying would succumb to a much smaller dose of radiation than the actively growing periphery. Attention might almost be confined to the periphery. The disappearance of a lump of malignant tissue was of less importance than the arrest of its spread. In addition to spread by infiltration, cancer cells spread by permeation of the lymphatics—a process that outstripped infiltration. Often it was best to ignore for the time the visible deposits and direct attention entirely to the zone of infiltration and of permeation surrounding it. The radium tubes should be so arranged as to give a lethal dose to that zone. Afterward, if the nodule had not disappeared, a second irradiation might be given in a narrower circle, and later still, if a vestige remained, another irradiation on the nodule itself.

PROTECTION OF WORKERS

Dr. G. W. C. Kaye of the National Physical Laboratory, London, said that radiologists did not always appreciate the result of scattered radiation. Rays were given off from the body of a person subjected to roentgen rays, and the scattering produced by the air in the room in the vicinity of the tube was something like that of the primary radiation beam. If the scattering was excessive, the operator should be behind a screen or wall, and this scattering rendered inadvisable the use of the cubicle system. Each outfit should be protected by walls extending from floor to ceiling, the floor and ceiling being also protected. The target of the tubes should not be pointed toward the controls. The protecting lead for a strength not exceeding 70,000 volts should be at least 1.5 mm. thick, for 100,000 volts 2 mm. thick, and for anything beyond, 3 mm. Whenever possible, the bulb should be surrounded by protective material, and if the latter was lead, it must be adequate for the prevention of sparking. He was surprised that the open bulb was still used, as in many cases it afforded no protection. Ventilation of enclosed spaces used in roentgen-ray work was important; failing it, workers suffered from depression, headache and nausea. Ceilings should be not less than 11 feet high and the conductors at least 9 feet from the floor.

The Cause of Cancer

A discovery of the first importance as to the causation of cancer appears to have been made by Dr. W. E. Gye in the laboratories of the Medical Research Council and is reported in the *Lancet*. It has the great merit of reconciling the conflicting evidence as to a parasitic cause. By carefully controlled experiments with the Rous chicken sarcoma, Dr. Gye has established the following: All malignant new growths contain an ultramicroscopic virus or group of viruses that can be cultivated. This applies to the carcinomas and sarcomas of fowl, mice, rats, dogs and man. The virus resides probably within the cells of the neoplasms. The virus alone, washed free from all adherent material, does not produce a tumor when injected, and does not even produce a visible lesion. But when injected with virus-free extracts of tumors, the virus produces a malignant new growth. The extracts contain, therefore, a substance called by Dr. Gye the specific factor, which enables the virus to attack the cells of the injected animal so as to transform them into cancer cells. There is no species specificity so far as the virus is concerned, for tumors can be obtained in one species of animal with the virus obtained from the tumor of another species. The specific factor shows a strict specificity of species. Thus, in order to produce a malignant new growth in a mouse it is necessary to use the specific factor from a mouse tumor, while the specific factor of a chicken tumor is ineffective. There is probably also a strict specificity of tissue for the specific factor. So far only sarcomas have been obtained, and these only with a mixture of virus and the specific factor from sarcomas, not from carcinomas. Thanks to the help of Mr. J. E. Barnard, F.R.S., whose brilliant advances in the use of ultraviolet and roentgen rays in microscopic work are well known, the virus, which is so minute as to be visible only by dark-ground illumination and resembles that of bovine pleuropneumonia, has been photographed.

The Spahlinger Treatment

Though the ministry of health adopts an attitude of reserve and the authorities on tuberculosis in this country remain unconvinced, the attempts of laymen, aided by a few physicians, to boom the Spahlinger treatment continue. The latest is explanatory addresses to a meeting of Cheshire landowners and farmers at Crewe. Extraordinary claims were advanced by Mr. R. G. Lovell, who has been several years associated with Mr. Spahlinger in the work at Carouge, Geneva, and by two medical members of Parliament who had made recent personal investigation of the treatment and its results on the spot. It appears that the present claims made for the treatment depend on the history of twenty cows

immunized some years ago by a vaccine, and on the cures and relief that are stated to have been afforded in the case of many human patients. Recently a deputation of physicians who are members of the House of Commons visited Geneva, and two of them—Dr. T. Watts, M.P., and Mr. J. H. Williams, M.P.—said that they had been convinced. Mr. Lovell said that Mr. Spahlinger had declined a German offer of a quarter of a million sterling, with half profits, for the exclusive use of his formula. Progress was hindered by the war and was now held up by financial difficulties, but be believed in the treatment and regarded Mr. Spahlinger as a genius and a great benefactor, although some people thought him a crank. Dr. J. Watts, M.P., who was in Geneva making the latest of several visits, said he had come back absolutely convinced that in Spahlinger's work they had something very different from any other pretended cure. It was a serum treatment differing fundamentally from others in that, from the first isolation of the tubercle bacillus, Henry Spahlinger had recognized the probability, and afterward proved the existence, of at least twenty-two strains of the bacillus, produced by as many different environments. His serums were prepared, accordingly, to counteract the twenty-two different microbic poisons with as many antidotes. The vaccine was usually obtained from black horses of the Irish hunter type. The twenty-two antigens produced by twenty years of labor by Spahlinger were combined to form his complete serum. The tragedy today was that Spahlinger was in possession of only seven of these antigens, but even with that partial serum marvelous results were being obtained. It is curious that at none of these meetings held in support of the Spahlinger treatment is any explanation forthcoming as to why no one in its native country seems inclined to give it any financial support. Switzerland is by no means backward in science or wanting in resources. Why are the appeals always made to England to save this supposed boon to humanity?

The Sterilization of the Unfit

In recent years, the subject of the sterilization of those who are mentally defective has attracted a good deal of attention. The result is that physicians are often consulted by the parents or guardians of defective children with a view to sterilization. As physicians are seriously exercised as to the legal position, the British Medical Association has obtained the opinion of a lawyer, Sir Travers Humphreys. He holds that any physician who performs vasectomy on the male or salpingectomy on the female, on eugenic grounds, would be acting illegally, even though the consent of both parents was obtained. The operation of sterilization is legally an assault. The only legal justification for performing it on a person who from mental weakness is incapable of giving a reasoned consent would be that the operation was necessary on grounds of health. The legal risks involved in such an operation would attach to all persons concerned —the physician who performed it and the parents who gave consent. The physician would have to answer to a criminal indictment for unlawfully wounding. A civil action for damages could also be brought by the defective or by his next friend in the same manner as actions are now brought by infants, and damages might be recovered from the physician. It is true that the jury might be disposed to take the view that in the public interest the conduct of the defendant was excusable and mitigate the damages, but it must not be forgotten that the operation would have deprived the defective of a function which the law nowhere denies him. On the contrary, the elaborate provisions of the mental deficiency act for the safeguarding of defectives might be invoked as indicating that the only means sanctioned by law for obtaining the desired end—preventing the propagation of the unfit—consists in segregation in licensed institutions. The same considerations would apply to epileptic patients of tender age. In the case of epileptic patients of mature years, the matter would depend on whether the person was able to and did give his consent to the operation. In the case of an epileptic patient who was quite normal and had full reasoning power between the attacks, his consent would afford an answer to any proceedings, civil or criminal, but great care should be taken in obtaining the clearest evidence of such consent before operating. In the absence of such consent, the operation would be illegal.

The Virus of Epidemic Encephalitis

The chief difficulty that has attended the study of epidemic encephalitis is the transmission of the disease to experimental animals. It has been suggested that the virus to be obtained from ordinary herpes of the skin is similar to that causing epidemic encephalitis, and rabbits are especially liable to encephalitis induced by injections of herpetic poison. The link between this "herpetic encephalitis" and true epidemic encephalitis has been wanting or feeble. Fresh light is thrown on the matter by a paper on "The Virus of Encephalitis Lethargica" by J. R. Perdrau (from the Laboratory of the Lambeth Hospital), which is published in the current number of the *British Journal of Experimental Pathology*. He has discovered that brain matter from fatal cases of epidemic encephalitis, if preserved in glycerin in the icechest, becomes much more virulent. After a lapse of six weeks, rabbits that could not formerly be infected with the brain matter quickly succumbed to it, and showed signs of an encephalitis indistinguishable from that of herpes. It would seem to follow that fresh brain matter from a fatal case contains, in addition to the virus of the disease, a relatively large quantity of antibody to this poison. The antibody, however, is less stable than the virus and so disappears. Thus, the brain matter becomes progressively more virulent up to a point of time. If this work is confirmed, it will enable a fresh attack to be made on the disease.

JAPAN

(From Our Regular Correspondent)

June 28, 1925.

Abolishment of Board of Beriberi Investigation

The retrenchment in government expenses necessitated that the board of beriberi investigation should be abolished. The eighteenth conference, recently held in the council chamber of the war department, was the last. The committee had done its best but was not fortunate enough to find the true cause of the disease. Nevertheless, its investigation furnished a valuable contribution to pathology. The opinion of the majority of the committee holds that beriberi is due to lack of vitamin B in conjunction with some other factor.

Research on Gastric Ulcer

Dr. I. Honda of the pathologic laboratory of the Kyoto-Furitsu Medical College, for his studies of gastric ulcer, may receive a special award at the Japan pathologic conference, which is to be held, July 11, at the Imperial University in Hokkaido.

Kyoto University Fire

A great loss was suffered by the Kyoto Imperial University, May 1, when the pathologic laboratory and its library were destroyed by fire. Most of the valuable specimens and papers were lost. The damage to the buildings alone is estimated at 100,000 yen, and the amount of damage to the apparatus and specimens is now being investigated.

Keio Medical Leader Retains Place

Baron Kitazato, who tendered his resignation as the head of the medical department of the Keio University, was per-

suaded to remain in his position by the urgent request of 700 students.

Honorary Degree Conferred on Oral Surgeon.

Dr. M. Chiwaki, president of the Tokyo Dental College, was presented with a certificate by the American ambassador, Mr. Edgar A. Bancroft, conferring on Japan's "father of modern dentistry" the honorary degree of Doctor of Laws granted by the Loyola University of Chicago.

PARIS

(From Our Regular Correspondent)

July 16, 1925.

Antigen Treatment of Tuberculosis

Before the Société des médecins de sanatoriums et de dispensaires d'hygiène sociale, L. Guinard has recounted his attempts to treat pulmonary tuberculosis with the antigen of Nègre and Boquet. The therapeutic trials were carried out at the Bligny Sanatorium, of which Guinard is the medical director.

The antigen, procured by Nègre and Boquet from the laboratory of Professor Calmette, is an alcoholic extract of bacillary bodies first treated with acetone and then dried and sterilized. Equal parts of distilled water are added, and the alcohol is eliminated by distillation in vacuo. A cubic centimeter of the injectable product corresponds to a centigram of bacillary bodies.

Through numerous experiments with rabbits and guinea-pigs, Nègre and Boquet have demonstrated that their bacillary extract has antigenic properties in that in vitro it fixes the complement of the serum of tuberculous subjects and that it produces antibodies in rabbits.

Injection of the antigen causes no local or general symptoms of hypersensibility in tuberculous animals. It also localizes and retards the progress of tuberculous lesions in laboratory animals, so that they outlive, to a notable degree, the controls. The lesions were much less extensive in the treated animals. The tubercle bacilli were much less numerous, being commonly confined to certain organs in which lesions in process of fibrosis were sometimes found. These results justified therapeutic trials on man.

The first trials on human beings were carried out by Armand Delille, Duhamel and Marty, who treated fifteen tuberculous children, and observed improvement in the general symptoms and local signs. They also observed, during the treatment, a certain parallelism between the antibody content of the blood serum and the general condition of patients.

Favorable action of the antigen in the treatment of tuberculosis of the skin and mucous membranes is reported by Lortat, Jacob and Bethoux, Halbron and Isaac Georges. These authors regard treatment with the antigen as a useful adjuvant of established methods of treatment of tuberculosis of the skin and mucous membranes.

Since 1923, Dr. Guinard has treated, at the Bligny Sanatorium, 142 patients with pulmonary tuberculosis. Of these patients, 116 presented tubercle bacilli in the sputum; forty-seven are still under treatment. Three of the patients presented pulmonary tuberculosis with complications (lupus of the nasal mucosa and of the gums). After several trials, Dr. Guinard, noting how well the antigen was borne, employed the product in an undiluted form or diluted with an equivalent volume of serum. He began with a dose of 0.05 c.c., which was increased gradually until a dosage of 1 c.c. a day was reached. Reactions were not infrequent. Contrary to the practice of his predecessors, he introduces no interval without treatment during the course of the injections, which are repeated every day or every other day during from five to six months. Some patients have been given the antigen continuously for nine, ten, eleven and even fourteen months. While the antigen is remarkably well borne, its injection causes a transient pain. Local reactions may be produced by the first injections, but usually are mild, and subside within forty-eight hours. In from 12 to 15 per cent. of the patients, the local reactions may be more intense and may persist for a time. At the start, rather large doses (from 0.25 to 0.5 c.c.) cause slight transient elevations of temperature. Changes of temperature are especially frequent in febrile and in subfebrile subjects. In such cases, small doses should be given at the start, and the progression both as to the increase and the repetition of the doses should be slower. The antigen is not advised as a radical curative remedy but only as a therapeutic adjuvant, useful in stimulating the natural defenses of the organism against tuberculosis, and reported to be safer than tuberculin. Of the 142 patients treated by Dr. Guinard, only fifty-five have finished the course. These included:

1. Ordinary fibrocaseous tuberculosis, with tubercle bacilli in the sputum (unilateral, eighteen cases; bilateral, ten cases).

2. Localized pulmonary tuberculosis with cavitation, with tubercle bacilli in the sputum—six cases.

The results in these thirty-four cases were as follows:

(*a*) Excellent results; adventitious symptoms have disappeared; no further tubercle bacilli in the sputum—eight cases.

(*b*) Condition much improved and the improvement stabilized: fourteen patients. In eleven of the fourteen the lesions show a marked tendency toward fibrosis.

(*c*) Amelioration or arrest—eight cases.

(*d*) Evolution not arrested but retarded—four cases.

3. Patients with extensive progressive bilateral lesions. The treatment had no effect in these cases.

4. The remaining patients, in whom the results of the treatment were excellent. These were affected with discrete lesions of slow evolution and were manifestly favorable cases. The good results might have been effected by the sanatorium treatment alone.

Fresh-Air Schools

Vacation colonies, which provide for poor children a sojourn of several weeks in the country, deserve the greatest praise and encouragement, but they are expensive, the outing is too short, and the child must be removed from the family. It would be better if these children could have fresh air all summer at slight expense, while left in the family environment. This the fresh-air classes established at Lyons, Versailles and Saint Brieuc have endeavored to accomplish.

Also Paris has created such fresh-air schools at slight expense by utilizing the open areas of the fortifications. Beginning in 1920, a number of trials have been made, and the results are more than satisfactory.

In the organ of the Comité national de défense contre la tuberculose, Dr. G. Vitry has given an account of the work accomplished by the fifteenth arrondissement of Paris, in which he has directed the fresh-air school for five years. This school, the expenses of which are paid out of the school fund of the fifteenth arrondissement, the funds of the departmental office of public health and the special appropriations of the department of primary instruction, is conceived on the type of a day school. The children are brought at 8 o'clock in the morning and leave at 6 o'clock in the evening. They take their midday meal and their afternoon luncheon at the school. They remove their street garments when they arrive and don a special school uniform. From two to three hours each day are reserved for regular class work, while the rest of the time is occupied with gymnastics, games, gardening and a nap after luncheon. The whole time, so far as the weather permits, is spent in the open air. Two

tents are immediately available but are used only in case of rain or on chilly days.

Each child, before he is admitted to the school, is given a complete medical examination. He brings with him his record card as filled out by the medical inspector of the school he has been attending. In the fresh-air school the child will be for several months under the supervision of a physician. The examination of the lungs is especially thorough, and signs of tracheobronchial adenopathy are diligently searched for. For children affected with tuberculosis, life at the fresh-air school is fatiguing. They should be placed in a preventorium.

At present, the fresh-air school opens the first week in May and closes the last week in September. A longer term in our northern climate is scarcely feasible. When the children leave the school in the fall, they have usually improved wonderfully.

RIO DE JANEIRO

(From Our Regular Correspondent)

June 15, 1925.

Detection of Spirochaeta Pallida

Dr. A. Aleixo, a professor in the Bello Horizonete Medical School, has studied the detection of *Spirochaeta pallida* by puncture of the chancre. The area about the chancre is sterilized and local anesthesia is used. A needle is inserted almost parallel to the surface, so as to cover practically the whole diameter of the chancre. With a Luer syringe, fluid is aspirated slowly. The fluid obtained in this way from a chancre usually contains few cells but many spirochetes. Tribondeau-Fontana's method is used for staining smears. Dr. Aleixo has applied this procedure in fifty proved or suspected cases; of these, forty-three, or 91.4 per cent., proved positive. This group included five cases of healed chancre, one case of phimosis, with a hidden chancre, and four cases in which identification of the organism proved difficult. Large chancres do not always yield the greatest number of spirochetes. Among the forty-three positive cases there were nine large chancres, and in seven of these, the spirochetes were rather scarce. The serum in some cases showed thready formations with bipolar granules similar to the forms found by Noguchi, Meirowiski and Bruck. Aleixo thinks they may be transition forms of *Spirochaeta pallida*. This would explain the success of inoculations with material apparently free from spirochetes, as in the cases reported by Arzt and Ker. In cases of mixed chancre, scrapings do not show the spirochetes, but punctures revealed them in six cases. A puncture also showed spirilla associated with fusiform bacilli in two cases. In one of these, spirochetes were also found. This occurrence has led Aleixo to accept a new type of mixed chancre, which he calls Schaudinn-Vincent's mixed chancre. Dr. Aleixo found neo-arsphenamin the most rapidly effective, then bismuth and finally mercury, in causing the spirochetes to disappear from the chancre.

Removal of the Gasserian Ganglion

Prof. A. Brandão, Jr., has reported to the National Academy of Medicine three cases of physiologic removal of the gasserian ganglion. In the first case, the patient had suffered for three years from itching in the left side of the mouth and tongue, with constant fever and a sensation as of an electric shock in the left side of the face. Dr. Brandão performed a retrogasserian neurotomy, after the method of Frazier, but using Adson's guillotine and lighting device. The "electrical shock" sensation disappeared completely, as well as the itching, but a left facial paralysis ensued.

In the second patient there was, after the operation, anesthesia of the trifacial area, including the vault of the palate, with normal sensation in the soft palate, uvula and both pillars on the neurectomized side; retention of the sense of taste in the left half of the tongue, and decreased flow of tears on the operated side. Therefor, the fifth nerve does not control sensation in the soft palate, and the observation regarding the sense of taste clashes with the views of those who accept a duality of the nerves of taste. Another interesting fact observed by Dr. Brandão, but already mentioned by Princeteau and Descamps, is the variable emerging point of the great and small petrosal nerves. These nerves, and especially the first, may follow a long subdural course. Thus, if cut, there may be no chance of repair. This mishap is responsible for the pull on the facial nerve. To the same cause may be attributed the facial paralysis and ocular and lacrimal disturbances. In the third patient, it became necessary to insert considerable gauze into the angle formed by the base of the skull and the base of the brain and exert much pressure to check hemorrhage.

Tribute to Charcot

The National Academy of Medicine, May 29, celebrated the first centenary of Charcot's birth. Speeches on several phases of the great neurologist's work were delivered by Drs. A. Nascimento, J. Moreira, A. Austregesilo, H. Roxo and L. Rodrigues Ferreira. The meeting was attended by all the members of the Society of Neurology, Psychiatrics and Legal Medicine, as well as members of other medical societies. Charcot was made an honorary member of the National Academy of Medicine in 1888, when he saved the life of Emperor Peter II at Milan. As he was one of the physicians most revered in Brazil, the recent tribute was received with approval throughout the country.

BERLIN

(From Our Regular Correspondent)

July 11, 1925.

Justification of the Proposed Law Pertaining to the Combating of Venereal Diseases

In support of the proposed law on venereal diseases, which I discussed last week (THE JOURNAL, July 25, p. 283), the government has issued a justification, from which I have selected the following statements of general interest:

In 1919 a general inquiry was instituted throughout Germany to ascertain the number of patients who, during the period from November 15 to December 14, 1919, had received medical treatment for a venereal disease or for the sequels of syphilis, as a result of which 136,328 persons were reported by physicians, hospitals and the army medical corps. Of this number, 92,304 had received medical treatment before the time specified, while 44,024 came under treatment during the month chosen for the census. If we multiply the latter figure (44,024) by 12, we obtain 528,288 as the approximate number of new cases developing every year. This figure represents 8.7 per thousand of population (60,000,000 taken as the total population of Germany). The number of old cases amounted to 1.5 per thousand, showing that 10.2 per thousand, or more than 1 per cent. of the total population, is affected with venereal disease during the course of one year.

The crusade against venereal disease is rendered difficult because the patients often endeavor to keep their disease a secret and to escape from medical treatment. The improper or inadequate treatment recommended by laymen and the consequent delay in consulting a competent physician have, in countless cases, resulted in the disease taking on an incurable chronic form and being transmitted to others.

There was some thought of establishing a penalty for neglecting to accept medical treatment, but such legislation was given up for fear that it might result in a horde of incriminations, denunciations and blackmailings, and might prevent a

venereal subject from seeking a physician after unsuccessful self-treatment or treatment by a layman.

Venereal disease cannot be combated successfully unless venereal subjects who are a constant menace can be compelled to accept medical treatment. The powers delegated to the board of health are not applicable solely to prostitutes but to both sexes without distinction. While it is true that infection is spread with extraordinary frequency by prostitutes, the law is aimed to an equal extent at that class of men (scarcely less dangerous) who practice promiscuous intercourse. In order that the health officers may be in a position to enforce prompt treatment, they must have the power to bring under a physician's care such persons as are strongly suspected of having a venereal disease and of transmitting it to others. Examination of suspects requires special knowledge and also entails special responsibility, since the result of the examination may furnish the basis for the adoption of drastic measures. It therefore does not appear advisable to grant every physician the right to issue health certificates. Repeated examinations will often be unavoidable. To prevent anything that might appear like arbitrary action, it seems best to place the power of requiring an examination in the hands of the board of health, which will take such action only on complaint of the examining physician.

In the ordinary penal code there are paragraphs covering the general subject of bodily injury, but they do not seem to have a deterrent and preventive effect, since they do not bring out clearly enough to the layman that they are applicable to infection with diseases, and especially with venereal diseases. Then, too, according to the penal code, an attempt is not punishable, and a penalty cannot be imposed unless the coitus actually resulted in infection with disease. Another obstacle that makes it difficult to prosecute offenders under the ordinary penal code is the fact that the causal relation between coitus and infection in an individual case is not easily established. A paragraph in the penal code cannot be expected to have much effect unless it provides a penalty for exposure. It seemed, therefore, advisable to combat the spread of venereal diseases by introducing a special paragraph pertaining to venereal subjects who, with full knowledge of their disease, indulge in sexual intercourse.

A special danger lies in the fact that, frequently, persons who have contracted a venereal disease enter into the marriage relation before they are sufficiently cured to eliminate the danger of infection. In order to enlighten persons in regard to this danger and to appeal to their conscience in the matter, the clerk in the magistrate's office who issues the license to marry is required to place in the hands of the engaged couple and of those whose consent to the marriage is needed, before he authorizes the publication of the bans, a special leaflet prepared by the federal health service entitled "Advice to Persons Contemplating Marriage." This leaflet emphasizes the importance of a medical consultation before entering on marriage and calls attention to the new legislation with respect to the responsibility of persons with venereal disease who are contemplating marriage. An officially approved leaflet containing the requisite advice and warnings is given out also by the physician who treats a venereal patient.

In no field of medicine do quacks and unauthorized healers do more harm than in their attempts to treat venereal disease. One chief danger lies in the fact that improper treatment, instead of effecting a cure, may lead to a marked exacerbation of the patient's condition. Of still greater importance, however (especially from the standpoint of the general public), is the time wasted with quacks, the delay in instituting necessary treatment, which permits the disease to become chronic and to remain infective for a long period. Especially in the smaller towns venereal subjects hesitate to consult regular physicians and resort to irregular practitioners, whose addresses are readily obtained from newspaper advertisements. Such advertisements often give testimonials and are frequently presented in a shameless and repugnant style, likely to impress ignorant and light-minded persons with the view that venereal diseases are not serious and that laymen can cure them readily and permanently. The law in its proposed form prohibits laymen from treating venereal patients.

Also physicians are prohibited from treating venereal patients in an improper manner or from offering their services in any way offensive to good taste or in contravention of the recognized precepts of the medical profession. Physicians who advertise in the daily press, by posters and like methods, their treatment of venereal patients, are for the most part without ethical scruples and extort all they can from their patients. To entice patients they frequently promise to cure them without interfering with their usual occupation. Renegade physicians often allow their names to be affixed to such misleading advertisements in order to attract patients for treatment by unconscionable quacks. Protection of patients against advertising physicians is imperative because the present bill, in order to make certain that venereal patients receive proper treatment, imposes on physicians the duty of notifying cases of venereal disease under certain conditions, which requirement, if used improperly, might make it difficult for timid patients ever to cut loose from such unconscionable physicians.

The measures adopted to combat the menace of venereal diseases are based primarily on the notification that the attending physician is required to make, just as the provincial laws enacted to combat other infectious diseases have introduced compulsory notification. The purpose of compulsory notification generally is to prevent the spread of disease by isolation of the patient and the institution of disinfective measures; but in the crusade against venereal diseases the chief considerations are to secure proper treatment without delay and by a follow-up system to see that the patient continues to be treated until he is no longer a potential source of infection. For the carrying out of a consistent course of treatment, compulsory notification can scarcely be dispensed with. In view of the need of discretion in connection with venereal diseases, it appears desirable that the physician's right of privileged communication with his patients be preserved as far as possible, since otherwise a patient's confidence in his physician would be seriously disturbed and he might be tempted on that account to resort to a lay practitioner. Compulsory notification, however, cannot be dispensed with in the cases in which the imperative danger of transmission of the disease to others requires immediate intervention. The physician should therefore be required to notify the authorities if the patient withdraws from medical treatment and thus from all sanitary supervision; or if, by reason of his (or her) occupation (e. g., as a barber or midwife), or on account of his personal relations (for example, mode of living), he constitutes a particular menace to others.

The persistent advertising, on the part of manufacturers and dealers, of multifarious remedies that are claimed to effect infallible cures in venereal diseases, is to be prohibited —especially since in the advertising of such remedies and procedures there often lurks a hidden inducement to commit abortion. In the public press, almanacs, illustrated pamphlets, and on covers and inserts of books the reader is confronted with glaring and often repugnant presentations of the alleged merits of remedies for venereal diseases, sometimes accompanied by illustrations, or by testimonials of doubtful authenticity in which physicians or alleged cured

patients testify to the wonderful efficacy and healing power of the offered products.

It has been found that many of the articles and remedies thus recommended for the prevention of venereal diseases are totally unadapted to this purpose. They serve merely to cheat the purchaser while, owing to his misplaced confidence in their prophylactic effects, he exposes himself to further infection. The federal government assumes, therefore, the right to exclude from the market all such useless articles and remedies.

However, venereal diseases are transmitted not only through coitus but also by other intimate contacts; for example, syphilis especially through the act of nursing an infant. Wetnurses are therefore to be required to furnish a health certificate before entering on new duties, and no one shall be permitted to employ a wetnurse unless she presents a recent health certificate. On the other hand, in order to prevent an infant from infecting its nurse, a physician must give his written consent before any other person than the mother is allowed to nurse an infant. Also other venereal diseases besides syphilis may be transmitted from nurse to child or vice versa if the needed precautions as directed by the physician are not taken. Likewise, the entrusting of a child that is affected with a venereal disease to care-taking persons who are unaware of the child's condition may lead to a spread of the disease.

However, no penalty shall be imposed if a syphilitic child is nursed by a woman who is affected with syphilis. The nurse can suffer no harm and the child may be greatly benefited by the breast feeding.

Police supervision of prostitution is usually carried out in the following manner: The names of habitual prostitutes are entered in a special register; the women are then placed under police supervision and are required to submit to regular medical examinations and to accept treatment if found to be diseased. This system has proved inadequate, since the number of clandestine prostitutes is, in most cities, considerably greater than the number that are registered and are known to the police. In Berlin, for example, there are said to be ten times as many clandestine as there are registered prostitutes. It is the general experience that these unregistered women are more frequently diseased than those who are registered. No real success in the crusade against the spread of venereal diseases by prostitutes can therefore be expected unless some method is found to bring the unregistered women under medical treatment. Some time ago, Prussia made an attempt to accomplish this. An edict of the federal ministers having jurisdiction contemplated modifications in the law that would give the supervision of unchaste women a predominantly medical character. It was planned to establish medical consultation centers for prostitutes. Women affected with venereal disease were to be afforded an opportunity to secure gratuitous medical treatment. As long as the women could show that they were subjecting themselves to regular examinations, they were to remain free from molestation by the police. It was made known to these women that if they received a court sentence for immoral conduct they would be placed under police supervision. Every effort was to be made to induce these women to reform and to lead respectable lives. The expectation that the unregistered women would have confidence in the medical consultation centers thus established and that they would willingly make use of the offer of gratuitous treatment without coming in contact with the police proved to be unfounded, mainly for the reason, as it is assumed, that such a mild form of supervision was not consistent with the provisions of the penal code. The penal code serves as an obstacle because it makes it more difficult for these women to find living quarters, which compels them to carry on their unchaste commerce in secret for fear of losing their rooms. The penal code stands in their way because it leaves them exempt from punishment only in case they have placed themselves under police supervision.

According to the penal code, any one is subject to punishment as a procurer who habitually or for the purpose of gain aids or abets unchaste conduct through his mediation or through the granting or procuring of opportunities for unchastity. Allowing a person or persons the use of a dwelling or apartment for unchaste purposes shall be regarded as an act in aid and abetment of unchastity. Therefore, any one renting to these women rooms or apartments for unchaste purposes becomes guilty of procuration if he does so habitually or for purposes of gain. The expression "for purposes of gain" has been given in law such a wide interpretation that it is sometimes taken to mean the securing of ordinary rent for rooms or apartments. On account of this interpretation of the law, many house-owners and sublessors have been subjected to penalties who had no intention of deriving any special gain from the unchaste conduct of these women. This condition of affairs awakened no little anxiety among the acquaintances of persons thus penalized and caused them to be more cautious in renting out their rooms. This made it difficult for fallen women to find rooms. In order not to lose their rooms, they are compelled to keep their unchaste conduct a secret or to pay exorbitant prices to the landlord. If it is assumed that prostitution—at least in the large cities—cannot be suppressed, then it follows that these women should be allowed to have rooms or apartments; otherwise they are driven on to the street and carry unchastity into the homes.

Therefore, the proposed law provides no punishment for affording room or shelter, unless it can be shown that the person to whom the room was rented or to whom its use was allowed was exploited in some manner, or was urged or compelled to commit unchaste acts.

Marriages

JAMES MONROE THORINGTON, Philadelphia, to Miss Christine Rehn of Germantown, Pa., June 12.

GEORGE STODDARD REYNOLDS, Pittsfield, Mass., to Miss Elizabeth Lee Hilles of New York, August 1.

ANSON PHELPS STOKES HOYT, New York, to Miss Amy Jessup Moore of Scarsdale, N. Y., June 30.

ROYAL WILLIAM RUDOLPH, Chicago, to Miss Bergliot Michelet Smith of Minneapolis, June 29.

RALPH SOMERS WALTER to Miss Verda DeLaney Weatherby, both of Harrisburg, Pa., June 3.

HOWELL COLMAN CRISSMAN, Detroit, to Miss Zita Loretta Doyle of Perth, Ont., Canada, June 30.

LAMBERT JOHN GEERLINGS, Fremont, Mich., to Miss Bertha Schweissenger of Muskegon, June 25.

JOHN SHELTON HORSLEY, JR., to Miss Lillian Waller Holladay, both of Richmond, Va., June 24.

ARTHUR D. WOODS, State Center, Iowa, to Miss Eldora Benteman, of Montezuma, recently.

ARTHUR M. STOKES, Union Hill, N. Y., to Miss Josephine Shoemaker of Rochester, June 6.

LEROY B. ELLISTON, La Salle, Ill., to Miss Ida Wurst of Morton, at Peru, July 9.

PERCY EVERETT SCHOOLS to Miss Evelyn Mallory, both of Richmond, Va., June 3.

EZRA EUGENE NEFF, Madison, Wis., to Miss Ruth Perry of Beverly, Mass., June 2.

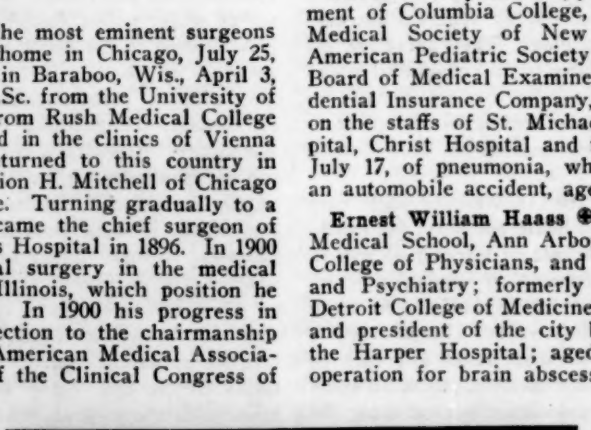
SEWARD R. DAVISON to Mrs. Elizabeth Owen, both of Johnstown, Pa., May 4.

JOHN ROBERT RICHARDSON, to Miss Hope Wood, both of Atlanta, Ga., June 30.

Deaths

Albert John Ochsner ⊕ one of the most eminent surgeons in the United States, died at his home in Chicago, July 25, of angina pectoris. He was born in Baraboo, Wis., April 3, 1858, and received his degree of B.Sc. from the University of Wisconsin in 1884 and the M.D. from Rush Medical College in 1886. Dr. Ochsner then studied in the clinics of Vienna and Berlin for two years, and returned to this country in 1888. At this time he married Marion H. Mitchell of Chicago and began the practice of medicine. Turning gradually to a special interest in surgery, he became the chief surgeon of Augustana Hospital and St. Mary's Hospital in 1896. In 1900 he was made professor of clinical surgery in the medical department of the University of Illinois, which position he held continuously until his death. In 1900 his progress in surgery was recognized by his election to the chairmanship of the Section on Surgery of the American Medical Association. In 1910 he was president of the Clinical Congress of Surgeons of North America; in 1923, president of the American College of Surgeons, and in 1924, president of the American Surgical Association. He was also a member of the Southern Surgical and Gynecological Society and an honorary fellow of the Royal College of Surgeons of Ireland and the Royal Microscopical Society of England.

Dr. Ochsner was widely known for his championship of the starvation method of treating appendicitis, which served to stem the flood of operations that occurred when the diagnosis and pathology of this condition became definitely established. He published his "Handbook on Appendicitis" in 1906. His clinic became a mecca for visiting surgeons because of its systematic organization and its extensive clinical material. This practice was exemplified by books on "Clinical Surgery for the Instruction of Practitioners and Students," 1905; "Surgery of the Thyroid and the Parathyroid Glands," 1910; "A Treatise on Surgical Diagnosis and Treatment," 1918, and a continuous editorship of the "Year Book of Surgery" from 1917 to 1923. Under his leadership the Augustana Hospital developed rapidly, a large new wing being added during the current year. A book on the "Organization, Management and Construction of a Hospital" by Dr. Ochsner appeared in 1907, reflecting his experience in this field.



ALBERT J. OCHSNER, M.D., 1858-1925

Dr. Ochsner was a familiar figure at all medical conferences and congresses. His striking personality and appearance and the invariable wearing of the white standing collar and white linen tie made him especially conspicuous. He never hesitated to take part in discussions, and his breadth of experience and wide travel made his contributions forceful and interesting. He spoke always for the highest type of surgical ethics and medical practice.

John Martin Gile ⊕ Hanover, N. H.; Dartmouth Medical School, Hanover, 1891; life member of the board of trustees, professor of practice of medicine, 1896-1910, and since 1910, dean and professor of clinical surgery at his alma mater; in 1906 and in 1907 he served as a member of the House of Delegates, and in 1907 was a member of the reference committee on Rules and Order of Business of the House of Delegates of the American Medical Association; member of the Massachusetts Medical Society, and the New England Surgical Society (president 1920-1921); aged 61; died suddenly, July 15, of angina pectoris.

William Perry Watson, Jersey City, N. J.; Medical Department of Columbia College, New York, 1878; member of the Medical Society of New Jersey; past president of the American Pediatric Society; member of the New Jersey State Board of Medical Examiners; director emeritus of the Prudential Insurance Company, Newark; served at various times on the staffs of St. Michael's Orphanage, St. Francis Hospital, Christ Hospital and the City Hospital, where he died, July 17, of pneumonia, which followed injuries received in an automobile accident, aged 71.

Ernest William Haass ⊕ Detroit; University of Michigan Medical School, Ann Arbor, 1892; member of the American College of Physicians, and the Detroit Society of Neurology and Psychiatry; formerly associate professor of medicine, Detroit College of Medicine and Surgery; at one time member and president of the city board of health; chief of staff at the Harper Hospital; aged 54; died, July 10, following an operation for brain abscess.

Sigmar Stark ⊕ Cincinnati; Bellevue Hospital Medical College, New York, 1884; director of service in the department of gynecology and professor of gynecology, University of Cincinnati College of Medicine; member of the American Association of Obstetricians and Gynecologists, and the Cincinnati Obstetrical Society; aged 62; died suddenly, July 15, at Carlsbad, Czechoslovakia, of heart disease.

Robert Edward Stevens ⊕ Rochelle, Ill.; College of Physicians and Surgeons, Chicago, 1904; past president of the Ogle County Medical Society; formerly health officer of Rochelle; served in the M. C., U. S. Army, during the World War; aged 46; died, July 11, at the Lincoln Hospital, of peritonitis, following an appendectomy.

William Conwell Smith, Rushville, Ind.; Medical College of Ohio, Cincinnati, 1891; past president of the Rush County Medical Society; formerly county physician, city health commissioner and secretary of the city board of health; aged 59; died, July 9, at the Southeastern Hospital for the Insane, North Madison.

Rufus Beech Scarlett ⊕ Erie, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1901; member of the American Laryngological, Rhinological and Otological Society, and the Philadelphia Laryngological Society; aged 47; died, July 11, at Westminster, following a long illness.

Elmer James Updegraff ⊕ Los Angeles; University of Nebraska College of Medicine, 1899; member of the Nebraska State Medical Association; formerly adjunct professor of the practice of surgery at his alma mater; aged 68; died, July 9, at the Hollywood Hospital, of heart disease.

Bacon Saunders ⊕ Forth Worth, Texas; University of Louisville (Ky.) School of Medicine, 1877; professor of clinical surgery, Baylor University College of Medicine, Dallas; member of the Southern Surgical Association; aged 70; died, July 15, at Colorado Springs.

George Herbert Bridgman, Keene, N. H.; Medical School of Harvard University, Boston, 1881; formerly United States Minister to Bolivia and United States Consul to Jamaica; aged 72; died, July 10, of coronary thrombosis.

Charles Lewis Atkinson, Brooklyn; Long Island College Hospital, Brooklyn, 1900; member of the Medical Society of the State of New York; aged 52; died suddenly, July 16, of angina pectoris.

⊕ Indicates "Fellow" of the American Medical Association.

John B. **Hilliker,** Grand Rapids, Mich.; College of Physicians and Surgeons, Chicago, 1892; for twenty-one years county coroner; member and at one time president of the board of education; aged 65; died, July 6, of heart disease.

Roy Eugene Hughes, Gainesville, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1908; member of the State Medical Association of Texas; aged 37; died, July 12, of burns received in an aeroplane accident.

Robert G. McTaggart, Cleveland; Medical Department of the University of Wooster, Cleveland, 1885; formerly on the staffs of St. John's and St. Alexis' hospitals; aged 63; died, July 13, at the Lutheran Hospital, of pneumonia.

Archie West Crary, Stockton, Calif.; State University of Iowa College of Medicine, Iowa City, 1906; formerly a practitioner in Iowa; veteran of the Spanish-American War; aged 49; died, June 30, following a long illness.

Charles Chase Walsh ✠ Merrill, Wis.; State University of Iowa College of Medicine, Iowa City, 1889; president of the Lincoln County Medical Society; aged 62; died, July 7, at St. Mary's Hospital, Wausau, of septicemia.

Louis James Oatman, St. Louis; Marion-Sims College of Medicine, St. Louis, 1893; Barnes Medical College, St. Louis, 1900; member of the Missouri State Medical Association; aged 54; died, July 1, of angina pectoris.

Minerva M. Knott, Glendale, Calif.; University of Michigan Medical School, Ann Arbor, 1895; member of the Missouri State Medical Association; aged 58; died, July 8, at a local hospital, following an operation.

James Francis Gilbert, Woonsocket, R. I.; College of Physicians and Surgeons, Boston, 1910; member of the Rhode Island Medical Society; also a dentist; aged 48; died, July 1, at Providence, of septicemia.

Isaac MacMunn Holly, Brooklyn; Long Island College Hospital, Brooklyn, 1897; served in the M. C., U. S. Army, during the World War; aged 57; died, July 10, as the result of an old roentgen-ray burn.

Wayland Sharp Hough, Cuyahoga Falls, Ohio; University of Wooster Medical Department, Cleveland, 1866; member of the Ohio State Medical Association; Civil War veteran; aged 81; died, July 4.

William Calvin Hawk, Bay City, Ore.; Rush Medical College, Chicago, 1884; member of the Oregon State Medical Society; aged 73; died, July 1, of injuries received in an automobile accident.

William Theodore Lochemes, Milwaukee; Wisconsin College of Physicians and Surgeons, 1896; member of the State Medical Society of Wisconsin; aged 62; died, July 17, following a long illness.

Daniel Edwin O'Neil ✠ Cape May, N. J.; Medical Department of the University of the City of New York, 1869; member of the Medical Society of the State of New York; aged 78; died, July 16.

John Lafayette Marshall, Greenwood, S. C.; Medical College of the State of South Carolnia, 1913; member of the South Carolina Medical Association; aged 44; died, July 9, of pneumonia.

Sampson J. Robertson, McDowell, Mo.; St. Louis College of Physicans and Surgeons, 1893; member of the Missouri State Medical Association; aged 58; died suddenly, July 3, of heart disease.

John Wilmer Peck, Hensall, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1914; aged 37; died, June 28, at St. Joseph's hospital, London, following an operation.

James Edward Edwards, Spartanburg, S. C.; College of Physicians and Surgeons, Chicago, 1905; member of the South Carolina Medical Association; aged 47; died, July 6, of uremia.

Nathan O. Harrelson ✠ Kansas City, Mo.; Kansas City Medical College, 1894; aged 56; died, July 2, at the Trinity Lutheran Hospital, of empyema following broncho-pneumonia.

John Wilson Mowell ✠ Olympia, Wash.; Missouri Medical College, St. Louis, 1888; on the staff of St. Peter's Hospital; aged 64; died, July 7, following a long illness.

Charles Eaton Lawton, South Orange, N. J.; Medical Department of Columbia College, New York, 1877; aged 69; died, July 4, at Waterville, Me., of broncho pneumonia.

Eli Marion Hoover, Halstead, Kan.; American Medical College, St. Louis, 1885; formerly mayor of Halstead; aged 75; died suddenly, July 11, of cerebral hemorrhage.

James E. Inskeep, Mount Carmel, Ill.; Eclectic Medical Institute, Cincinnati, 1877; county coroner; aged 73; died, July 9, following a long illness, of diabetes mellitus.

John Ewing Haughey ✠ Rockford, Ill.; Rush Medical College, Chicago, 1891; on the staff of St. Anthony's Hospital; aged 62; died, July 6, of carcinoma of the stomach.

Joseph Frank Slepicka ✠ Suttons Bay, Mich.; Rush Medical College, Chicago, 1903; aged 47; died, July 10, at St. Luke's Hospital, Chicago, of chronic nephritis.

Lucian G. North, Tecumseh, Mich.; University of Michigan Medical School, Ann Arbor, 1877; for many years member of the board of education; aged 74; died, July 9.

Daniel Elmer Lane, Alhambra, Calif.; Hahnemann Medical College and Hospital, Chicago, 1878; aged 72; died, July 8, at the Good Samaritan Hospital, Los Angeles.

Edwin Oscar Colvin, Baker, Mont.; University of Michigan Medical School, Ann Arbor, 1895; aged 70; died, in July, at Kenosha, Wis., of pernicious anemia.

Thomas George Tayler, Green Mountain, Iowa; Jefferson Medical College of Philadelphia, 1886; aged 62; died, July 13, at the Deaconess Hospital, Marshalltown.

Thomas Augustine Maher, Bancroft, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; aged 45; died suddenly, July 9, of heart disease.

George Alfred Evans ✠ Brooklyn; Bellevue Hospital Medical College, New York, 1873; member of the American College of Physicians; aged 74; died, July 14.

Samuel Goode Mobley, Johnston, S. C.; Jefferson Medical College of Philadelphia, 1856; aged 90; died, July 10, at the Margaret Wright Hospital, Augusta.

John W. Hyatt, Placerville, Calif.; Starling Medical College, Columbus, 1890; also a lawyer, aged 64; died recently, of peritonitis following appendicitis.

William Tefft, Dunkirk, N. Y.; University of Buffalo Department of Medicine, 1890; aged 65; died, July 1, of embolism and chronic nephritis.

John Francis Denham, Boyceville, Wis.; Hahnemann Medical College and Hospital, Chicago, 1896; aged 67; died, July 12, of cerebral embolism.

James S. Ross, Okolona, Ark.; Medical Department University of Louisiana, New Orleans, 1878; aged 71; died suddenly, July 5, of heart disease.

Edward Payson King, Gary, Ind.; Fort Wayne College of Medicine, 1897; veteran of the Spanish-American and World wars; aged 51; died, July 10.

Arthur Lewis Seeley ✠ Mayville, Mich.; Detroit Medical College, 1884; aged 65; died, July 7, at a hospital in Detroit, following a prostatectomy.

Willis G. Nesbitt, Cleveland; Western Reserve University School of Medicine, Cleveland, 1882; aged 67; died, July 2, of cerebral hemorrhage.

Thomas F. Hogg, Allendale, S. C.; Medical College of the State of South Carolina, Charleston, 1903; aged 45; died, June 19, of tuberculosis.

Van Glenn Yeager, Alexandria, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1909; aged 42; died, in July.

Henry C. Suess, Pomona, Calif.; Hahnemann Medical College of Philadelphia, 1878; formerly a practitioner in Kansas; aged 81; died, July 2.

Lawrence Arthur Beers, Salmon, Idaho; College of Physicians and Surgeons, Baltimore, 1880; aged 69; died, in June, of aortic insufficiency.

Brontz Luther Cowen, Waynesburg, Pa.; Jefferson Medical College of Philadelphia, 1909; aged 42; died, July 12, of epidemic encephalitis.

Alfred J. Baxter, Astoria, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; aged 70; died, July 10, of chronic nephritis.

Reid Ringer ✠ Monon, Ind.; Indiana University School of Medicine, Indianapolis, 1923; aged 28; died, July 1, of cerebral hemorrhage.

Samuel Leigh Southard Smith, San Angelo, Texas; University of Michigan Medical School, Ann Arbor, 1873; aged 79; died, July 7.

Henry Tilge Johnson ✠ Pedricktown, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1878; aged 71; died, July 4.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

McFERRIN, THE HUMOROUS "DIET SPECIALIST"

More Pseudo-Science in the Field of Nutrition

In the present year of grace there is no more fertile field for quackery and pseudo-scientific buncombe than in that pertaining to diet. The ineffable nonsense on this subject published by the Macfaddens, the Brinklers, the Lusts, the Tildens, et al., is bearing fruit among that large portion of the population whose mentality approaches that of the child of twelve. The stock in trade of these false prophets of nutrition is made up of 5 per cent. platitudes of elementary dietetics and 95 per cent. nonsense. The followers of the prophets are unable to distinguish between the platitudes and the flapdoodle.

For two or three years THE JOURNAL has been receiving inquiries, chiefly from physicians, but occasionally from laymen, regarding the scientific status of one "Doctor"—sometimes "Professor"—Charles B. McFerrin, who describes himself as a "Food Scientist, Diet Specialist, Humorist." McFerrin has his headquarters in Chicago, although he seems to spend his time largely in the South giving "lectures" on "food science" and diet, and organizing "courses" among women, who seem to furnish his main audience, each member it is said paying $15 for the "course." As indicative of the character of the inquiries THE JOURNAL has received, the following may be quoted:

A physician from Washington, D. C., wrote:

"While in the South recently (Tennessee) I was told a great deal about Professor Charles B. McFerrin. He had been in several sections telling the people how to keep well and had been selling them courses of instruction and literature. He had made many friends and followers. I saw a copy of his *Health Bulletin* and came to the conclusion that McFerrin is very much of a quack."

A physician from Vicksburg, Mississippi, wrote:

"A Professor McFerrin has been giving lectures in Vicksburg this past week. The lectures consist of a series of talks on diet, at $15 a member. I think he is a faker of the worst sort, though his lectures constantly boost the family physician."

This letter, addressed to the director of the Bureau of Investigation, came from a public school teacher:

"I am writing you at the suggestion of Dr. Harvey W. Wiley. Do you know anything of Dr. McFerrin of Chicago? He gave some lectures, which I attended, and I would like to know his standing as a food expert before I follow his advice. I have diabetes and he advised raisins, figs, dates and Spanish peanuts. As that is unusual I wrote to Dr. Wiley."

From a physician in Virginia came this inquiry:

"Please give me any information you may have as to Dr. (?) Charles B. McFerrin, self-styled expert on dietetics, who has victimized the Civic League women in this town to the extent of about $500 in a series of perfectly absurd lectures."

IF IT'S HEALTH YOU CRAVE,

Let's have a heart-to-heart talk at once. I am a dietitian. You will be given more free information in a half-hour's chat with me than you are really expecting to receive.

Do you belong to the class who always have a box of Aspirin tablets in your hand bag? If so, you will surely pay high for this sort of thing at a time in life when you can least afford it. When operations have swallowed up your home and you have only a dilapidated constitution to your credit, how you will regret that you failed to fortify yourself by study.

Lot's of people are pushed over into heaven before Nature sets the date!

FOODS KILL—FOODS CURE

My instructions give immediate relief to constipation and stomach sufferers, and there is **no starvation dieting.**

EAT YOUR WAY BACK TO HEALTH! LEAVE THE TABLE SATISFIED, but learn to neutralize those biting stomach and intestinal acids. Sulphur, saltpeter and charcoal are all very **innocent** chemicals until they are combined, **then they make dynamite.** Most foods are innocent and will build you up until they are wrongly combined in your intestines. **Then they explode!** Hence gas, headache, neuralgia, rhematism, asthma, catarrh, pyorrhea, etc.

Certain foods form pus in the body, which finds its way to the teeth and tonsils, and thousands of people are losing these valuable organs instead of finding out what foods are causing the mucus and pus. Most of those who have learned this are saving their child's tonsils, which are the drain pipes of the throat, and ought to be saved **if possible.** If pus is not continually **formed** in the body the tonsils will reduce in size. This method is the only one known to science to solve the tonsil problem and to keep people from eternally having colds all winter long.

Unless you hit the **"food combination trail" your troubles will go on and on**—with the boss's sympathy, of course, but without the pay envelope.

My suggestions to you will help you to become a **Self-Winder.**

Knowledge or treatment—which? It will be one or the other!

How extremely simple acquiring health is, but how eternally long we are in **"hitting the white trail."** Some are on the black trail and some have found the gray trail; they are those who are approaching correct methods and by their crude investigations have caught a glimpse of **the Real Route and are partially redeeming themselves.** Don't let your ignorance of the food combination rules stand between you and three fine bowel actions a day and a better job and money accumulation.

A talk with me does not obligate you in the least. It will appeal to you. There are but few who are not receptive to my proposition. I'll tell you where your trouble lies. Decide to take the bit in your own teeth awhile and see if you can't feel better.

If you let this opportunity pass, you will live to despise yourself sometime when YOUR suffering or that of your loved ones, is magnified to the agony point.

CHARLES B. McFERRIN
Lecturer and Teacher
Dietitian.

Reproduction (greatly reduced) of one of the advertising "dodgers" used by "Dr." Charles B. McFerrin the "Dietitian." The style seems to be a hybrid—a cross between that of Eugene Christian's and Billy Sunday's.

THE SYSTEM

Mr. McFerrin begins by getting in touch with women's organizations throughout the South and offering to deliver one or two free lectures. The free lectures are, apparently, used as advertisements for his "courses" in dietetics. He also, it appears, prescribes individual dietaries for which he makes a charge. His chief "free" talk is described as "his celebrated lecture 'What's the Matter with Everybody?'" He has, too, a special talk which is announced, somewhat loosely, in the advertising leaflets as "his celebrated lecture on 'Foods That Explode in the Intestines,' to Women Only." Just what foods do explode in the intestines, presumably of "women only," is not mentioned, but the subject may have interesting possibilities.

Knowing that physicians are opposed to the exploitation of the sick and the near-sick, and possibly fearing that he may expect criticism from the medical profession, Mr. McFerrin anticipates the inevitable and endeavors to placate by telling what wonderful fellows physicians are. He sends out a form-letter to the physicians in the town in which he is about to deliver his "lectures" and give his "courses." This communication opens with the statement that he always discourages the use of worthless "patent medicines" and advises medical examination by the physician at least twice a year. It is followed up with the statement that his "work includes instruction and admonition only—no treatment of any kind," and suggests that following his "course" people are likely to call on the physician for advice and treatment. He also has distributed a little card printed in two colors, panegyrizing the doctor. It is typical "Pollyanna."

AWFUL POSSIBILITIES IN TOMATOES AND POTATOES

Mr. McFerrin seems to have drunk deep of those Pierian springs of pseudo-dietetic inspiration that emanate from such sources as Eugene Christian, Alsaker, Brinkler and others of similar caliber. In one of his advertising leaflets, inviting the public to attend his free lecture, he enlarges on the theme that "some people have never yet sat down to a scientific meal," thus:

"They do not know that the combining of stewed tomatoes and creamed or mashed potatoes has a strong tendency to tear up the mucus lining of the stomach and intestines, causing constipation, and a general acid or 'sour' condition of the body, making asthma, nervousness, rheumatism and other maladies possible."

In the same leaflet McFerrin hands out this informative gem:

"Certain foods also form mucus and pus in the tonsils, kidneys and teeth, and are at the bottom of much catarrhal trouble."

He also lays down the dictum that "neuritis sufferers should not eat grape-fruit" and that "nervous people should not eat honey." These same advertising leaflets—which are so prepared as to give the impression that a local organization puts them out rather than McFerrin himself—assert that "there are only four lecturing diet experts in the United States," and, therefore, the townspeople "should consider themselves fortunate indeed" to have the opportunity of listening to "so distinguished a gentleman as Professor McFerrin."

THE HIGH EXPLOSIVE FOODS

Like Mr. Eugene Christian, Mr. McFerrin thinks that foods have TNT possibilities. Says he: "Most foods are innocent

and will build you up until they are wrongly combined in your intestines. THEN THEY EXPLODE! Hence gas, headache, neuralgia, rheumatism, asthma, catarrh, pyorrhea, etc."

Those who read the exposé in *Hygeia* may remember the theory propounded by that picturesque food faddist, J. H. Tilden, of Denver: Every disease is due to toxemia; toxemia is due to enervation; enervation is due to improper eating. The one fascinating thing about cults and fads is the simplicity of their philosophy; it can be grasped by the veriest moron. Mr. McFerrin's pathology differs slightly from that of Tilden's but it is equally elementary. He states that "instead of there being six hundred diseases as we are told, there is only one, and that is MAL-NUTRITION." McFerrin insists that "most people do not know any more about how to prepare a health meal than a four-weeks-old puppy." Such ignorance must be a marvellous asset to McFerrin.

In addition to the lectures that are free and the courses and prescriptions that are charged for, Mr. McFerrin has for sale *Health Bulletins*. These are a weird mixture of elementary dietetics, quotations from faddists such as Macfadden, Lindlahr, Alsaker, Tilden, and Eugene Christian, and advertisements of fads and quackeries. A good deal of the advertising in the *Bulletin* is devoted to "Dr." Charles B. McFerrin himself. There is a full-page Alsaker advertisement, a half-page of the Lindlahr "nature cure" concern, a full-page dealing with "Inner-Clean," said to be "An Aromatic Herb Compound, Progressively and Thoroughly Cleansing and Rejuvenating Relaxed, Flabby Intestines and Restoring Normal Activity." This last wonder is put out by the Alert Food Supply Co. of Brewton, Alabama. Then there are two full pages devoted to "Porter's Nature-Sweets" put out by Porter's Trufoods, Inc. More than a page is taken in advertising some products of the Natur-Way Company. Incidentally it is worth noting that both Porter's Trufoods, Inc., and the Natur-Way Co. have occupied the same room in the Chicago office building used by McFerrin for his headquarters.

AUGUST 9, 1924.

SPRAINED HIS WRIST SPANKING MOTHER-IN-LAW

Because of his intense love for his mother-in-law, and because she refused to attend the lectures given by the noted diet expert, Dr. Charles B. McFerrin, of Chicago, in Macon last week, so that she could prolong her life, John Harper, a well known Macon man literally spanked his mother-in-law and sustained a sprained wrist.

We understand that Dr. McFerrin is also to speak in Columbus Monday night at the court house at 8:15 under the auspices of the W. C. T. U.

The local organization trusts that it will not be necessary for any Columbus citizen to have to be spanked, to be sent to hear this wonderful man.

It is said that Dr. McFerrin is in possession of superior information on matters of diet. So if you have acid stomach, 'rheumatis,' asthma or nervousness, or your "inwards" are misbehaving—or if you feel "bum,' you will learn lots that night and get a good laugh and go away with a lighter heart, a new hope, and a bright prospet for feeling in the future. There will be no admission charges and no collection.

—adv.

A specimen (reduced) of the type of local advertising done by McFerrin.

THE EPSOM SALT BATH

The amount of misinformation contained in any one copy of McFerrin's *Health Bulletin* is much too large to be dealt with in detail in an article of this length. A few examples must suffice. On the first page of one of the *Bulletins* we are told of "The Value of the Epsom Salts Bath." A few quotations from this article will give an idea of McFerrin's conception of physiology and pathology:

"Sickness generally means too much carbon in the body; this carbon may be in the form of mucus; it generally is.

"Epsom Salts water applied externally as a sponge bath or by use by immersion in the bath tub has a wonderful affinity for carbon, fairly pulling it out of the body. . . ."

"For headaches, sore throats or almost any trouble in distant parts of the body, the neck pack or bandage seems to reach the spot and give much relief. This is because every artery or vein, large or small, of course, passes through the neck and much poison is extracted from the blood as the blood flows through the neck near the Epsom Salts water.

"After an hour's soak in warm water in a bath tub, one may add two or three pounds of Epsom Salts and draw much carbon from the innermost recesses of the body. This is exceedingly helpful in rheumatism particularly. In catarrhal troubles it is a boon, also in asthmatic conditions and also in nervousness."

In the same *Bulletin* there is a longer article on "The Tissue Elements, or Cell Salts" in which we are told that "silica does much toward absorbing poisonous gases in the stomach and bowels, and will do its part toward eliminating catarrh," while "chlorine is indispensable in biliousness" and potassium "is death to malarial fever," not forgetting that "sodium is valuable in eliminating uric acid."

Another article in the same issue discusses "Mucus Forming Foods." McFerrin admits that "the idea that certain foods form mucus is a new one to many people," in fact, "many physicians do not seem to understand this." When we cease eating "mucus forming foods," however, catarrh disappears, while it has been found that gray hair returns to "former youthful shade of brown."

Then it seems soap is a bad thing. Thus McFerrin:

"The use of soap is at the bottom of several of our troubles. I have known of bed wetting that has been stopped the day that the afternoon warm soap bath ceased. Many cases of kidney trouble are almost immediately improved when soap is not used on the skin."

Corn meal should be used in the place of soap, according to McFerrin, because:

"There are two hundred miles of blood capillaries in your skin which have not had much fresh oxygen and not been able to give up their poisons for years due to the ruined condition of your skin after soap baths."

ATTAINING SUCCESS IN LOVE AND BUSINESS

Most cults nowadays find it good policy in connection with their offers of short cuts to physical perfection to devote a certain amount of time to persuading their followers that they also offer short cuts to financial and social success. This particular drawing card has been highly developed by the followers of Mrs. Eddy. McFerrin, not to be left in the lurch, recommends what he calls "The Rhythmic or Success Breath." This particular brand of breathing is one in which the length of time required to inhale and exhale the air into and from the lungs are equal. The "success" feature is thus described.

"It has been proved by thousands of our deepest thinkers that if during the progress of the slow rhythmic breathing one will keep the mind on some one thing he may desire, love, harmony, business success, attractiveness, money, etc., that the act of the will power in demanding these things at the same time the breaths are taken will invariably bring about the conditions or things desired."

Mr. McFerrin is convinced that this is a good thing because he has tried it "many a time and finds that it works."

It is probably not necessary to say by this time that Mr. McFerrin holds the opinion that micro-organisms never cause disease. According to him, pathogenic bacteria are merely "the germ bugaboo."

MARVELS OF THE NEUTRAL BATH

The neutral bath, which of course has a proper though limited place in balneotherapy, is put forward by McFerrin as a veritable panacea. His idea is that by keeping the body immersed for hours at a time in water at body temperature miraculous results will be obtained. McFerrin's thesis is that "there are relaxing foods and there are contracting foods and people generally are eating a predominance of the latter class, therefore their muscles are terribly contracted." To take the contraction out of the body one indulges in the "neutral bath." The long soak is said to soften and relax the larger muscles so that no matter what your troubles may have been they gradually disappear. Furthermore, after three hours in the tub "the water penetrates the internal organs in a manner floating them and relieving much pressure on each other," while in from six to nine hours "the liver is wonderfully purified" and "gall stones many times soften and pass away with ease, thus saving an expensive and painful operation."

Enough has been said to make plain to the reader the utter lack of scientific background exhibited by the "Doctor-Professor" Charles B. McFerrin—Food Scientist, Diet Spe-

cialist, Humorist. In addition to the sale of courses and individual prescriptions and *Health Bulletins*, McFerrin also charges $2 for each letter of information that he writes—which would be cheap enough if the information were trustworthy. Then he has a "Corrective Dietary List," price $5, and "Special Diet for the Unborn," price $10. "Dr. McFerrin's Kitchen and Dining Room Chart" printed in two colors, comes at $2.50—"study this chart and stop poisoning your body!" But the really big thing is the "Atonement Dietary Service, Dr. Charles B. McFerrin, Founder." An elaborate, two-page questionnaire comes with the McFerrin *Health Bulletin*. This the prospective patient is asked to fill out and send with a remittance of $5. In addition to inquiries about "torpid" liver, "acid" stomach, "tender" bowels, etc., one question reads: "If you are a woman state your husband's occupation?" This, we take it, is to enable Mr. McFerrin to judge the financial possibilities of a patient so that he may temper the financial wind to the lamb that is about to be shorn. Elsewhere in speaking of this "Atonement Dietary Service" Mr. McFerrin states:

"Prices range from a $5 diet to $500. Even the highest price is cheaper than a single operation or a funeral."

Summed up, one is probably doing "Food Scientist, Diet Specialist, Humorist" McFerrin no injustice in declaring that as a "food scientist" and "diet specialist" he is a "humorist."

Correspondence

ALTERNATING SQUINT

To the Editor:—If there was ever such as thing as the "last word," it would seem to have been uttered in the paper on alternating squint, by Goar, and the subsequent discussion at the Atlantic City session (The Journal, July 11). But, since a universal motor aphasia is not within the purview, a few more, if they are to the point, can do no harm. Syllogistically, if the statement is true, as assumed, that alternating squint is not amendable to orthoptic measures, the employment of such measures, before or after operation, as suggested, partakes of the non sequitur conclusion. On the other hand, if orthoptic exercises are profitable after operation it may be error to predicate that they are not all-sufficient—in some cases duly selected, as in monocular squint. A one year time limit is wholly arbitrary. But, whatever may be thought of this academic presentation, the fact that has provoked it is more significant. This fact is that I have recently seen a patient, a bright girl, aged 13 years, who, in spite of much discouragement, has persisted for four years with orthoptic exercises, with the result that a deviation of 25 degrees (perimeter arc) has been reduced to 5 degrees, with fleeting periods of parallelism. It is likewise noteworthy that marked improvement followed a concession to her desire for the largest round lenses her face would bear. I do not pretend to account for this change. I am simply wondering how many more factors there may be in squint.

H. B. Young, Burlington, Iowa.

"INTRANASAL DISEASE IN THE PRODUCTION OF BRONCHIAL ASTHMA"

To the Editor:—Intranasal operations for the cure of true bronchial asthma are still popular, and yet in my experience invariably futile. I feel that no apology is necessary for the following comment on the article entitled "Intranasal Disease in the Production of Bronchial Asthma" by M. J. Gottlieb, which appeared in The Journal, July 11.

After reading the article, one gets the erroneous impression that intranasal operations are of benefit in the relief of true bronchial asthma. If this were so, one would certainly have a right to expect results from intranasal operations in the "absorption cases," "where purulent disease is found (in the nose) and the symptoms are the result of absorption of protein material from the diseased area." As a matter of fact, the two cases cited under this heading yielded no results after intranasal treatments and operations. Results were obtained only after intravenous use of typhoid vaccines. From personal experience, I know that the same good results can be obtained by the intravenous use of typhoid vaccine without previous nasal operations.

The time mentioned in the cases cited is comparatively so short that I feel one is not justified to draw conclusions as to the efficacy of any line of treatment in such a disease as bronchial asthma, which is characterized by a spontaneous remission of symptoms of variable interval.

I feel, after a careful study of the author's cited cases, that one is justified to expect under "conclusions," the following sentence: "Intranasal operation as a cure for bronchial asthma is futile."

William Lintz, Brooklyn.

ABSENCE OF TULAREMIA (RABBIT FEVER) AMONG RABBITS RAISED IN RABBITRIES

To the Editor:—Within the last three years, authoritative articles have appeared describing a new disease of man, tularemia. These articles have stated that the disease was contracted from dissecting or dressing rabbits sick with "rabbit fever," as in the case of market men, cooks, hunters and fishermen.

Thus far the only rabbits found infected in nature with "rabbit fever" have been the wild rabbits—cottontails, jack rabbits and snowshoe rabbits—not the domestic rabbits raised in rabbitries for food or for laboratory purposes, or raised by fanciers under the names of Belgian hares, Flemish giants, New Zealand breeds, etc.

Publication of these articles has caused instances of confusion in the public mind, resulting in prejudice against continuing the use for food or for pets of domestic rabbits raised in rabbitries. That prejudice is without any foundation whatever, and on all occasions the opportunity has been embraced to restate the observation that "rabbit fever" has never been encountered in nature in domestic rabbits raised in rabbitries, nor has tularemia been contracted by man from eating or handling such rabbits, but only from wild rabbits. The cooked rabbit-meat is harmless.

Edward Francis, M.D., Washington, D. C.

HEREDITARY BLINDNESS

To the Editor:—In the report of the Committee on Hereditary Blindness presented to the Section on Ophthalmology at the recent session of the Association (The Journal, July 18, p. 192), the following statement appears: "Various estimates thus far made by students of this question have placed the number of those blind in the United States from hereditary causes as from about 75,000 to 100,000." Such a number would be truly appalling if the facts substantiated this statement, but I fear that the committee has been greatly misled in its statistics. The 1920 United States Census places the total number of blind in the United States at 57,444 persons. As this number represents practically no increase over the similar item given in the 1910 census, we may conclude that the number of blind from all causes in the United States at the present time is not far different from that just stated. We do not know what proportion of the blind are blind from hereditary causes, but Dr. Clarence Loeb (*Ann. Ophth.* **18**, 1909) made a careful investigation from which he calculated

that this proportion does not exceed 10 per cent. In Best's careful and complete work on "The Blind," published in 1919, the statement is made on page 152 that "but a comparatively small portion of all blindness is to be ascribed to hereditary action." The correct number of persons in the United States blind from hereditary causes is probably nearer 5,000 than the very alarming figure given in the report of the committee. All of us would agree with the committee as to the importance of preventing blindness if possible. I am not sure, however, that a large number would favor additional legislation as suggested.

CLARENCE E. FORD, Albany, N. Y.
Superintendent, Division of Medical Charities.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CANCER OF THE BREAST

To the Editor:—Mrs. L., aged 31 years, had three children, the youngest aged 18 months. Two weeks before the birth of the youngest child, mastitis developed in the left breast. One week before confinement, the breast was lanced, with the discharge of considerable pus. The breast continued to discharge pus and milk while the baby was nursing, only the sound breast being used. After the child was weaned, the discharge ceased. The patient consulted me for the first time a few days ago. She is four months pregnant. Lately she has had pains in and around the diseased breast. Examination shows it to be larger than the other and nodular. The nodules are fairly firm, but not of stony hardness. One gland, rather soft to the touch, can be felt in the axilla. The right breast appears normal. Should the patient be advised to have the breast amputated? If so, is the operation likely to interrupt pregnancy? If amputation is not done, what is the prognosis and what line of conservative treatment should be followed? Kindly omit my name.

M.D., Canada.

ANSWER.—It is usually more difficult to make a positive diagnosis of malignancy in the female breast during pregnancy, which is all the more reason for the exhibition of greater care.

In the case cited, most physicians would not hesitate to have the breast removed if the signs of carcinoma are present. If the signs are suggestive, an exploratory operation should be made, and the surgeon should be ready to proceed if malignancy is found.

Pregnancy is rarely interrupted by such intervention. It is hard to generalize on such a serious matter and unfair to advise without seeing the patient.

SELF-ADMINISTERED ANESTHESIA IN OBSTETRICS

To the Editor:—Which of the general anesthetics is most commonly used today in uncomplicated obstetric cases attended in the home? I have never used anything and have had no complaints from the patient, but patients talk to one another about their cases, and I am getting demands that either chloroform or ether be used in certain cases. I have always felt that it was unsafe to allow the patient to administer chloroform herself, and if ether was used enough would not be inhaled to cause relief from pain unless I administered it myself, and this I cannot do and keep may hands sterile. (Kindly omit name and address.)

M.D., Pennsylvania.

ANSWER.—The question of anesthesia in the absence of adequate assistance is always a serious problem in obstetrics. This is the result of the general disposition to regard labor as a purely physiologic process, which it rarely is among highly civilized women. They admit this themselves by their constant insistence on anesthesia.

The family should be impressed by the physician with the idea that nothing should be spared in time, money or assistants to make the delivery as safe, easy and painless as possible. The physician and the family should insist that every aid be available for instant use in case of necessity. It would result in the saving of many lives. No one can say when a labor which promises to be easy and natural may not develop the most serious and dangerous complications.

A man ought never to try to deliver a woman alone unless compelled. Some member of the family, or a neighbor, should always be at hand, and this person can usually give the anesthetic under medical direction. At present only ether and chloroform allow us to do this without too great risk.

If the woman is delivered on her side with the buttocks at the edge of the bed, the physician can keep his hands clean, watch the perineum and administer the anesthetic from a bottle well covered with aseptic gauze. At the last minute the head can be slipped through before the woman wakes up.

If the delivery is on the back, the woman herself can often aid—with ether. She uses the mask, and the physician pours out the proper amount.

One physician solved the problem by tying together a string and a stout rubber cord, which was fastened to a hook just over the patient's head but so short that she would have to reach for it.

The patient pulled down the saturated mask and inhaled until relaxation occurred and the mask flew out of her hand. When she came to consciousness again she could grasp the mask, which was again wet with chloroform. This method, though crude, is safer in principle than the chloroform holders on the market.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 1. Sec., Dr. Harry C. De Vighne, Juneau.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examinations in Class A Medical Schools. Parts I and II, Sept. 16-18. All applications must be made on or before August 15. Sec., Dr. John S. Rodman, 1600 Walnut St., Philadelphia.

NEW HAMPSHIRE: Concord, Sept. 10-11. Sec., Dr. Charles Duncan, Concord.

OKLAHOMA: Oklahoma City, Sept. 8-9. Sec., Dr. James M. Byrum, Shawnee.

PHILIPPINE ISLANDS: Manila, Aug. 11. Sec., Dr. Jose V. Gloria, 686 Rizal Ave., Manila.

PORTO RICO: San Juan, Sept. 1. Sec., Dr. Diego A. Biascoschea, 3 Allen St., San Juan.

Nevada Reciprocity Report

Dr. Simeon L. Lee, secretary, Nevada Board of Medical Examiners, reports that 7 candidates were licensed by reciprocity from the November, 1924, meeting up to and including June 17, 1925. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1915), (1924)	California
Northwestern University		(1903)	Illinois
University of Michigan Medical School		(1913)	Michigan
Washington University		(1918)	Missouri
University of Oregon		(1924)	Utah
University of Vermont		(1908)	Vermont

Missouri February Examination

Dr. James Stewart, secretary, Missouri State Board of Health, reports the oral, written and practical examination held at St. Louis, Feb. 24-27, 1925. The examination covered 14 subjects and included 102 questions. An average of 70 per cent. was required to pass. Of the 30 candidates examined, 28 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
Yale University		(1924)	1
Howard University		(1924)	1
Northwestern University		(1893, 1), (1924, 1)	2
State University of Iowa		(1924)	1
University of Kansas		(1924)	1
University of Louisville		(1924)	1
University of Minnesota Medical School		(1924)	1
St. Louis University		(1924, 1), (1925, 8)	9
Washington University		(1924)	4
Columbia University College of Phys. and Surgs.		(1914)	1
Cornell University		(1914, 1), (1922, 1)	2
University of Pennsylvania		(1924)	1
Meharry Medical College		(1923, 1), (1924, 1)	2
University of Vermont		(1924)	1

College	FAILED	Year Grad.	Number Failed
Eclectic Medical College		(1910)	1
University of West Tennessee		(1914)	1

Book Notices

PEDIATRICS. By various authors. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School. Volume VI. Cloth. Price, $10. Pp. 736, with 150 illustrations. Philadelphia: W. B. Saunders Company, 1925.

PEDIATRICS. Volume VII. By various authors. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School. Cloth. Price, $10. Pp. 879, with 70 illustrations. Philadelphia: W. B. Saunders Company, 1925.

Volumes of this monumental attempt at a complete statement of our present knowledge of the diseases of children continue to appear; the series will probably be completed during this year with the eighth volume and the general index. Because of the vast scope of the work, the early issuing of the general index is desirable, as material on any single topic may appear in several of the volumes. The physician who uses the work for reference will desire to avail himself of all the data.

Volume VI contains notable essays on several topics, including a brief discussion of the regulation of the body temperature by Dr. F. B. Talbot, of diphtheria by Dr. William H. Park, of whooping cough by Dr. A. Friedlander, of scarlet fever by Dr. George H. Weaver, of anesthesia by Drs. Isabella C. Herb, Frederick G. Dyas and F. H. McMechan, and of the surgery of childhood by Dr. Dean Lewis. It is apparent that the editor has selected his contributors on the basis of their recent contributions to scientific literature in the fields with which they are concerned. In his discussion of whooping cough, Dr. Friedlander finds the vaccine of prophylactic as well as therapeutic value, and he cites briefly the literature on which his opinion is based. The section on scarlet fever by Dr. Weaver is remarkable not only for its completeness but also for his personal contributions based on an extensive experience. Unfortunately, the section on etiology appears to have been written previous to the recent work by the Dicks, Dochez, Blake and others, so that their contributions to etiology are included in an added section, with a supplementary list of bibliographic references to the literature of 1924. It would, of course, have been better to revise the original manuscript to include that material in its proper place. The added note is not properly indicated as such, but is included under the heading, "specific therapy."

Volume VII is devoted to the nervous system, including surgery of the head and spine, as well as the psychologic aspects of child life. Of especial interest is the article on chorea by Dr. Theodore C. Hempelmann, excellently developed from an historical point of view and very practical with its complete discussion of therapy. One would expect to find also in this section of the book the special discussion of epidemic encephalitis as it affects the child, but the only reference to it in this volume is the differentiation from tuberculous meningitis. The subject of epilepsy is considered by Dr. George B. Hassin according to classical form, at least a full page being devoted to the use of bromids, and some four lines to the use of phenobarbital (luminal), although the latter substance would seem to merit a little more discussion in the present stage of our experience. Without a doubt, three of the most valuable sections of this book are those on the psychopathology of childhood by Dr. Bernard Glueck, who has been a leader in the field, on the defects of speech by Dr. Elmer L. Kenyon, and on the sexual life of the child by Dr. Smith Ely Jelliffe.

EMPHYSEM UND EMPHYSEMHERZ. Klinik und Therapie. Von Prof. Dr. Nikolaus Jagić und Dr. Gustav Spengler. Abhandlungen aus dem Gesamtgebiet der Medizin. Herausgegeben von Prof. Dr. Josef Kyrle und Dr. Theodor Hryntschak. Paper. Price, 35 cents. Pp. 42. Vienna: Julius Springer, 1924.

This is a very good compilation of the main facts concerning emphysema. The heart condition attending emphysema, too often overlooked or misunderstood by the practitioner, is given its due place of prominence. There is little that is new in the work, though the authors lay stress on certain views that they have for some time held as to the prominent part played by bronchospasm in the production and in the clinical manifestations of the disease. This feature, with the discussion of the value of epinephrin when the bronchospastic phenomena are evident, and digitalis when heart weakness is threatening, add something of an element of freshness to what might otherwise be merely a repetition, though in good form, of the already well known facts concerning emphysema.

COMMON INFECTIONS OF THE FEMALE URETHRA AND CERVIX. By Frank Kidd, M.A., M.Ch., F.R.C.S., and A. Malcolm Simpson, B.A., M.B., D.P.H. With additional chapters by George T. Western, M.D., and M. S. Mayou, F.R.C.S. Cloth. Price, $2.50. Pp. 191, with 10 illustrations. New York: Oxford University Press, 1924.

This is the result of research work extending over a period of five years. The cases in the venereal clinic at the London Hospital have been analyzed, and the results included in the text. The authors show that comparatively simple methods, methods almost within the scope of the general practitioner, have resulted in complete cures in a large number of cases of female gonorrhea. The authors place considerable faith in the use of flavine. In fact, they use it as a routine almost to the exclusion of other medication. Considerable stress is placed on rest in bed. The authors attribute the frequency of salpingitis to lack of rest in bed. They advocate very active treatment to the cervix in all cases (even in pregnancy) of acute gonorrhea. They feel that ascending infections are thus prevented. Diathermy is reserved for cases that resist the medical treatment. The book is well written, the only criticism being that the authors repeat themselves occasionally. The advice contained is generally sound.

ANAPHYLAXIS AND SENSITIZATION. With Special Reference to the Skin and Its Diseases. By R. Cranston Low, M.D., F.R.C.P., Lecturer on Diseases of the Skin, Edinburgh University. Cloth. Price, $6.50. Pp. 384, with 23 illustrations. New York: William Wood & Company, 1925.

This volume contains a thesis for the M.D. degree of the University of Edinburgh. The aim is to consider the relations of sensitization to the skin and its diseases. The first two chapters contain a succinct account on conventional lines of the main facts and hypotheses concerning sensitization, with a particular reference to its manifestation in man. Then follow thirteen chapters in which various cutaneous diseases are considered from the point of view of sensitization. The last chapter deals with the methods and means of desensitization. There is an exhaustive bibliography, but it is not well arranged for ready reference. The colored plates are good. The book has a definite value, particularly for the dermatologist who is interested in the part played by sensitization in diseases of the skin.

DIE ÖRTLICHE BETÄUBUNG, IHRE WISSENSCHAFTLICHEN GRUNDLAGEN UND PRAKTISCHE ANWENDUNG. Ein Hand, und Lehrbuch. Von Prof. Dr. Heinrich Braun, Geh. Medizinalrat, Direktor des Krankenstiftes in Zwickau. Seventh edition. Cloth. Price, 22.50 renten marks. Pp. 511, with 212 illustrations. Leipsic: Johann Ambrosius Barth, 1925.

The seventh edition of this well known work shows few changes from the sixth edition, which appeared in 1921. Most of the changes relate to paravertebral anesthesia. This method of blocking the upper cervical nerves is condemned on account of the danger of the needle's entering the spinal canal. In the abdominal region, the anterior method of blocking the solar plexus is preferred to the posterior method. Aside from these few changes, this edition is practically the same as the sixth.

CLINICAL PHYSIOLOGY. By Louis E. Bisch, M.D., Ph.D. Cloth. Price, $3. Pp. 346, with illustrations. Baltimore: Williams & Wilkins Company, 1925.

This book is based on a series of lectures to students at Teachers College and in the extension courses at Columbia University. The case studies are derived from Dr. Schlapp's clinic at the New York Post-Graduate Medical School and Hospital. The latter take up 116 pages and are largely devoted to a detailed citation of responses to Binet-Simon tests. There is no [illegible], therefore, to the diagnosis given, and the erroneous inference is allowed that it might be derived from the data presented. The author leans entirely too heavily on intelligence tests and the general subject of feeblemindedness for the bulk of his material on clinical psychology. Photographs of no diagnostic significance are

presented of psychoneurosis, dementia praecox, congenital precocity and hystero-epilepsy. Throughout this volume one fears that school teachers will be impelled on the basis of such meager accounts of epilepsy and congenital syphilis as are presented in Chapters XII and XIII to attempt to diagnose these conditions. As long as the purpose of the writer, as he expresses it, is maintained there should be no trouble: "Acquaint yourselves with the cardinal signs of mental defect; be on the alert to recognize them when present; then take the child to the proper place for a complete examination and follow the advice given." For the recognition of these signs the book may be recommended, but as a "guide for the recognition, diagnosis, treatment and disposition of the atypical child," as advertised on the cover, the book falls short.

Miscellany

THE DISTRIBUTION OF LEPROSY

Equatorial Africa has a higher incidence of leprosy than any other region in the world. According to Rogers and Muir (Leprosy, New York, William Wood & Co., 1925), the rate is 130 per thousand population in the Ebolawa district, 60.7 on the French Ivory Coast, and 20 in the Cameroons and Abyssinia. Since leprosy was certainly introduced into Europe from Africa, the conquest of Egypt by Xerxes, who is said to have led 6,000,000 people into Europe from Africa and Asia, would account for its introduction into Greece. Italy probably became affected with the return of Pompey's soldiers in 62 B. C. Galen, in 180 A. D., wrote of leprosy in Germany, where, according to Virchow, four centuries later there were 636 leper houses established in Verdun, Maestricht and Italy. Long before the crusades, practically all parts of Europe were affected, but at that period leprosy became alarming. There were 2,000 leper houses in France alone in 1229. America was discovered about the time that leprosy was widespread in Europe, and there is evidence that the earliest immigrants from Portugal and Spain carried leprosy with them. Montaya states, say Rogers and Muir, that the first cases in Colombia were all in Spaniards as early as 1543. The African slave trade was a more important factor, however, in spreading leprosy in the Western Hemisphere, 1,300,000 slaves having been carried to Central America by the end of the sixteenth century. The first known cases in what is now the United States occurred in Louisiana in 1758; the next authentic cases occurred in 1866 in French immigrants, and the disease has continued in Louisiana from that time until the present.

On account of the enormous population, China is one of the most important leper areas in the world. The total number of cases in China was estimated by von Vloten at 1,000,000. Japan, in 1912, had more than 102,000 lepers, and the 1921 census enumerated about the same number in India, where, had early cases been included, the total number probably would have been doubled. Startling outbreaks occurred late in the nineteenth century in certain islands in the Pacific; the most important was in Hawaii, where leprosy was probably introduced by Chinese immigrants in 1848. The next serious outbreak was in New Caledonia, where it was also due to a Chinese; in ten years, from one fourth to one half of the population in some places were attacked. The epidemic spread next to the Loyalty Islands, where the first case was reported in a Chinese in 1878. Thompson is said to have obtained no history of leprosy in the aboriginal Australians, although a few cases occurred where they came in contact with the Chinese and Malays. Australia still has very litte leprosy except in Queensland and New South Wales; Greenland, in 1900, was reported free, but a few Greenland lepers have since been found. Norway and Sweden became affected in the middle ages, and foci have persisted until today, although the number of cases in late years has gradually decreased. On the Pacific Coast of the United States, leprosy has been confined largely to Chinese immigrants, most of whom have been returned to China. A number of imported lepers have been found in our large Eastern cities, but there has been little tendency on either coast to originate new infections. Some years ago, Hanson reported that of about 160 lepers known to have emigrated to Minnesota, Wisconsin and Iowa, all but about seventeen had died at the time of his visit without giving rise to any known new cases. Since Hanson's inquiry, however, Brinckerhoff has reported that leprosy is endemic in Minnesota, a few cases having developed in persons born there. There is a persistent focus in some districts of New Brunswick, Canada, which dates back to 1815, and a few cases have been found in Chinese immigrants in British Columbia in western Canada. Chinese immigrants seem to have been an important factor in the spread of leprosy, Jeanselme reporting in 1902 that they carried leprosy to Java, Sumatra, Borneo, the Philippines, Indo-China, Siam, the Straits Settlements and other East Indian islands.

The most striking fact indicated by Rogers and Muir's carefully prepared leprosy map is that every country with a high leprosy incidence (from 5 to 60 per thousand population) is within the tropics, and practically all of them have a high rainfall. They say that leprosy is nearly or completely absent from those parts of the tropics in which the rainfall is less than 10 inches.

As Rogers and Muir conclude, leprosy probably originated in the northern belt of Central Africa, whence it spread to Egypt and from there possibly all over the world. Warfare and emigration seem to have been the chief means to that end.

INFANT MORTALITY IN CITIES OF THE UNITED STATES

The sixth annual statistical report of infant mortality in cities of more than 10,000 population has been issued by the American Child Health Association. The report covers the infant death rates in 667 cities of the United States during 1924. The data analyzed are obtained from the United States Bureau of the Census for 515 cities with populations of 10,000 or more (according to the 1920 census) in the birth and death registration areas, 114 cities in the birth registration area and 38 cities outside these areas. Tables and a large chart show the crude rates for each of these 667 cities, and adjusted rates for cities of New Jersey, which is the only state that assigns births and deaths to the place of residence. This correction, in certain cases, makes a notable difference in the relative position of cities. The lowest crude death rate of the 629 cities in the birth registration area is 25 for New Philadelphia, Ohio. The highest figure is 153 for Charleston, S. C. Of the cities with more than 250,000 inhabitants, the highest rate is reported for Pittsburgh, 92, and the lowest rate for Seattle, 45. The computation according to states shows the lowest urban rates for Oregon, Washington and Minnesota and the highest rates for Southern states, where the racial factor is of considerable moment. The errors due to incomplete reporting of births and other influences that should be taken into account in evaluating mortality rates are pointed out in this report.

WORKING WOMEN IN THE UNITED STATES

According to the Department of Labor, 8,500,000 women in the United States earn their own living and in many instances contribute to the support of their families. From the investigations of the Women's Bureau and a study of census statistics, it appears that one in every five working women is less than 20 years of age and more than one in every five is between 20 and 24 years of age; another two fifths of the women who work are between 25 and 44 years of age. While nearly one in every three men who work is more than 44 years of age, only one in six women who work is more than that age. More women are employed in domestic service than in any other group of occupations. There are 2,000,000 married women at work, one half of whom are native white. South Carolina has the greatest proportion of its women at work, more than one third, and West Virginia the smallest proportion, about one ninth.

Medicolegal

Harrison Narcotic Law and the Practice of Medicine

(Linder v. United States (U. S.), 45 Sup. Ct. Rep. 446)

The Supreme Court of the United States, in reversing a judgment which affirmed a conviction of defendant Linder of violating the Harrison Narcotic Law and in remanding the cause for further proceedings, says that, in effect, the indictment alleged that the accused, a duly registered physician, violated the statute by giving to a known addict four tablets containing morphin and cocain with the expectation that she would administer them to herself in divided doses, while unrestrained and beyond his presence or control, for the sole purpose of relieving conditions incident to addiction and keeping herself comfortable. The indictment did not question the physician's good faith, nor the wisdom or propriety of his action according to medical standards. It did not allege that he dispensed the drugs otherwise than to a patient in the course of his professional practice or for other than medical purposes. The facts disclosed indicated no conscious design to violate the law, no cause to suspect that the recipient intended to sell or otherwise dispose of the drugs, and no real probability that she would not consume them.

The declared object of the narcotic law is to provide revenue, and this court has held that whatever additional moral end it may have in view must "be reached only through a revenue measure and within the limits of a revenue measure." Congress cannot, under the pretext of executing delegated power, pass laws for the accomplishment of objects not entrusted to the federal government. Obviously, direct control of medical practice in the state is beyond the power of the federal government. Incidental regulation of such practice by Congress through a taxing act cannot extend to matters plainly inappropriate and unnecessary to reasonable enforcement of a revenue measure. The enactment under consideration levies a tax, upheld by this court, on every person who imports, manufactures, produces, compounds, sells, deals in, dispenses or gives away opium or coca leaves or derivatives therefrom, and may regulate medical practice in the states only so far as reasonably appropriate for or merely incidental to its enforcement. It says nothing of "addicts" and does not undertake to prescribe methods for their medical treatment. They are diseased and proper subjects for such treatment, and this court cannot possibly conclude that a physician acted improperly or unwisely or for other than medical purposes solely because he has dispensed to one of them in the ordinary course, and in good faith, four small tablets of morphin or cocain for relief of conditions incident to addiction. What constitutes bona fide medical practice must be determined on consideration of evidence and attending circumstances. Mere pretense of such practice, of course, cannot legalize forbidden sales, or otherwise nullify valid provisions of the statute, or defeat such regulations as may be fairly appropriate to its enforcement within the proper limitations of a revenue measure.

The opinion in *United States* v. *Behrman*, 257 U. S. 280, 287, 42 S. Ct. 303, cannot be accepted as authority for holding that a physician, who acts bona fide and according to fair medical standards, may never give an addict moderate amounts of drugs for self-administration in order to relieve conditions incident to addiction. Enforcement of the tax demands no such drastic rule, and if the act had such scope it would certainly encounter grave constitutional difficulties.

The narcotic law is essentially a revenue measure, and its provisions must be reasonably applied with the primary view of enforcing the special tax. This court finds no facts alleged in the indictment sufficient to show that the accused had done anything falling within definite inhibitions or sufficient materially to imperil orderly collection of revenue from sales. Federal power is delegated, and its prescribed limits must not be transcended even though the end seems desirable. The unfortunate condition of the recipient certainly created no reasonable probability that she would sell or otherwise dispose of the few tablets entrusted to her; and this court cannot say that by so dispensing them the physician necessarily transcended the limits of that professional conduct with which Congress never intended to interfere.

Physician Not Responsible for Burning of Patient

(Olson v. Bolstad (Minn.), 201 N. W. R. 918)

The Supreme Court of Minnesota says that the defendant physician attended the plaintiff in childbirth at her home. The child was safely delivered, and he left. Three hours later, the plaintiff, who was being cared for by her mother and by her husband and by a licensed midwife of twelve years' experience as a midwife, went into convulsions and the defendant was again called. On seeing her condition, he said: "Get all the hot water bottles and hot flatirons you possibly can and put on her at once—get her warmed up." The husband procured four flatirons, which the midwife heated, wrapped up, and placed about the plaintiff's person. The plaintiff was unconscious. The defendant, after administering a hypodermic and giving her some further treatment, called an ambulance and directed that she be taken to the hospital. He left before the ambulance came, but met them at the hospital, where they arrived at about 11 p. m. Some hours later the plaintiff regained consciousness. The next morning it was found that she had been badly burned on the right breast and left leg. The evidence would permit a jury to find that two of the flatirons had become unwrapped and caused the burning. The question presented in this action for malpractice was whether the defendant was chargeable with negligence for failing to guard against the happening of such an accident. It was conceded that he, although present, took no part in preparing, wrapping or placing the hot irons. His negligence, if any, consisted in the fact that he gave no attention to them after they were wrapped and placed about his patient by the midwife; that he did not look to see whether any of them had become unwrapped or were likely to cause burns. Wrapping the irons so they would not burn and so the wrappings would remain in place required no professional skill. The midwife or any person of common intelligence and experience was competent to do it. The court thinks that it could not be said that the defendant was guilty of negligence in trusting the midwife to perform that service and in relying on her to perform it properly. As the fact that he made no examination to see whether the irons were, and remained, properly wrapped was the only respect in which it was claimed that he was derelict, the court thinks that the trial court reached the correct conclusion when it, at the close of the plaintiff's case, dismissed the action on the ground that the evidence failed to show negligence on the part of the defendant; and therefore that courts order denying the plaintiff's motion for a new trial is affirmed.

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 16-18. Dr. James E. Davis, 111 Josephine Avenue, Detroit, Secretary.

American Electrotherapeutic Association, Chicago, Sept. 15-17. Dr. Richard Kovacs, 223 East 68th Street, New York, Secretary.

American Roentgen Ray Society, Washington, D. C., Sept. 22-25. Dr. Charles L. Martin, Baylor Hospital, Dallas, Texas, Secretary.

Idaho State Medical Association, Pocatello, Sept. 10-12. Dr. J. N. Davis, Kimberly, Secretary.

Indiana State Medical Association, Marion, Sept. 23-25. Mr. T. A. Hendricks, Hume Mansur Building, Indianapolis, Executive Secretary.

Mississippi Valley Conference on Tuberculosis, Lansing, Mich., Sept. 15-17. Dr. T. J. Werle, 209 W. Shiawassee Street, Lansing, Mich., Executive Secretary.

National Medical Association, Chicago, Aug. 25-28. Dr. Clyde Donnell, 121 Parrish Street, Durham, N. C., Secretary.

Oregon State Medical Society, Medford, Sept. 2-4. Dr. C. L. Booth, 1021 Selling Bldg., Portland, Secretary.

Utah State Medical Association, Salt Lake City, Sept. 7-12. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.

Washington State Medical Association, Seattle, Sept. 17-18. Dr. C. H. Thomson, Cobb Building, Seattle, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 16-18. Mr. J. G. Crownhart, 558 Jefferson Street, Milwaukee, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

169: 781-936 (June) 1925

Effect of Premature Dogmatization in Medical Sciences. W. H. Manwaring, Standford University, Calif.—p. 781.
*Is Our Knowledge of Pneumonia Sufficient to Explain Its Endemicity and Occasional Epidemicity? A. C. Abbott, Philadelphia.—p. 784.
*Simulation of Acute Respiratory Diseases by Secondary Lung Tumors. L. F. Craver, New York.—p. 792.
*Ciliary Inhibition or Destruction in Tracheobronchial Asthma; Bronchoscopic Treatment. W. F. Moore, Philadelphia.—p. 799.
*Chronic Mediastinitis. L. C. Knox, New York.—p. 897.
*Primary Tuberculous Pericarditis. W. B. Rawls, New York.—p. 815.
*Lymphatic Leukemia in Infancy; Case. M. Wollstein and F. H. Bartlett, New York.—p. 819.
*Sole Prints of New-Born Babies. R. B. Montgomery, Madison, Wis.—p. 830.
*Influence of Gallbladder on Intestinal Motility. B. M. Bernstein, Brooklyn.—p. 838.
*Experimental Studies on Color of Bile from Gallbladder and Liver. A. Winkelstein and P. W. Aschner, New York.—p. 842.
*An Estimation of Clinical Value of van den Bergh Test. E. G. Ravdin, Philadelphia.—p. 850.
Thyroxin and Tryptophane Content of Diseased Thyroid Gland; Iodin Compounds in Desiccated Thyroid. J. F. Weir, Rochester, Minn.—p. 860.
*Use of Lipiodal in Localization of Spinal Lesions. F. G. Ebaugh, Philadelphia.—p. 865.
*An Instrument Utilizable for Various Operations; Blood Transfusion, Hypodermoclysis, Intravenous Infusion, Phlebotomy and Withdrawal of Fluids from Body Cavities. H. M. Feinblatt, Brooklyn.—p. 870.
*Three Cases of Bullet Wounds of Heart Showing Attempts at Healing. B. M. Vance, New York.—p. 872.
*Heart Block Caused by Gumma of Septum. Two Cases. N. E. Clarke and F. J. Smith, Detroit.—p. 882.
*Obstructive Jaundice. E. S. Judd and V. G. Burden, Rochester, Minn.—p. 888.

Epidemiology of Pneumonia.—In Abbott's opinion the evidence does not justify the belief that the endemicity and occasional epidemicity of pneumonia are due to the simple transference of one or another of the types of pneumococcus from the sick to the well. The fact that recovery from pneumonia confers no appreciable immunity from subsequent invasions by the homologous type of pneumococcus (or by other types) justifies a question as to the etiologic relationship of that organism to pneumonia. The occurrence of pneumonia as a result of the activities of diverse organisms suggests the possibility that the lesions of the lungs are but secondary to an antecedent general or local condition brought about by some other as yet unidentified organism. If the pulmonary lesions may be regarded as secondary developments, may not the spread of the disease be explained by the existence of some, as yet unknown, predisposing agent; and may not invasion and transmission occur before the disease is recognizable as pneumonia? This would explain the persistent, ubiquitous, high rate of morbidity as well as the occasional epidemic explosions.

Secondary Lung Tumors.—Craven reports three cases of secondary lung tumors. In the first case the primary tumor was a periosteal osteogenic sarcoma of the lower end of the right femur; in the second case, the lung metastases were secondary to a cancer of the lip, and in the third case to a carcinoma of the cervix. Craven calls attention to the difficulty of making an early diagnosis in these cases because the onset may simulate any form of lung disease.

Bronchoscopic Treatment of Asthma.—Moore presents results of bronchoscopic, histologic and bacteriologic studies in a series of twenty-seven cases of tracheobronchial asthma. The speedy relief afforded the great majority of patients has led Moore to believe that bronchoscopy alone, affording as it does a means of cleansing the overloaded mucous membrane of the tracheobronchial tree, temporarily alleviates the symptoms and yields relatively permanent results in many cases. This would seem to justify the conclusion that defective ciliary drainage is a factor of the utmost importance.

Chronic Mediastinitis.—A case of chronic mediastinitis, which caused the death of the patient, is cited by Knox in which syphilis is believed to have been the etiologic factor. The lesion was a dense hyaline connective tissue mass, with granulomatous areas, sclerosing and constricting blood vessels, nerves and large bronchi. The infiltration and productive inflammation closely simulated in extent and effect a malignant tumor.

Primary Tuberculous Pericarditis.—The case cited by Rawls was considered as one of primary tuberculuos pericarditis; that is, it was proved to be primary, as no other focus of tuberculosis was found after careful search. The diagnosis was based on the chronicity, the presence of a relatively large sterile effusion, guinea-pig injection and necropsy findings.

Lymphatic Leukemia in Infant.—A case of acute lymphatic leukemia in a female infant, aged 14 months, is recorded in clinical and anatomic detail by Wollstein and Bartlett. Macroscopic and microscopic leukemic nodules were found in the liver and kidney, while the spleen and lymph nodes showed diffuse infiltration with lymphocytes.

Sole Prints of New-Born Babies.—Montgomery describes a new method of taking finger, palm and sole prints of babies which was devised by J. H. Mathews and is said to be far superior to the old ink method. The details of the process have not yet been made public, but will be in the near future.

Influence of Gallbladder on Intestinal Motility.—According to Bernstein there is a substance secreted from the gallbladder which is of hormonal type and an activator. It has a regulatory effect on intestinal motility. Its absence produces an imbalance in the normal correlated action of the circular and longitudinal muscle fibers of the intestinal tract. Bernstein suggests, as a theoretic possibility; that the permanent or even temporary absence of this substance in the gallbladder may be the exciting cause for the production of the primary cholesterin calculus, in permitting a precipitation of the cholesterin in the bile, where it may be held in solution by the presence of this substance.

Color of Bile.—By means of cannulas placed in the biliary ducts Winkelstein and Aschner were able to observe the appearance of bile from the dog's liver alone and from the gallbladder and liver together. Bile in the common duct of fasting dogs under the experimental conditions was dark greenish-brown in color and almost tarry in consistency, when the gallbladder was in situ. Bile obtained directly from the liver was a light yellow color whether the dog was feeding or fasting. Exceptionally it was of a medium brown color in the first twenty-four hours after operation. After cholecystectomy the bile from the common duct was light yellow and thin in consistency whether the dog was feeding or fasting. The instillation of 25 per cent. magnesium sulphate solution into the duodenum was not followed by an change in the color of the bile from the common duct either before or after cholecystectomy, under these experimental conditions.

Clinical Value of van den Bergh Test.—The test of van den Bergh for the estimation of the type and quantity of bilirubin found in the blood serum is discussed by Ravdin as is also his interpretation of the test and the theories on which he bases his interpretation. Whether van den Bergh's theory of jaundice is accepted or not, the test and his interpretation of it are in accord with the clinical findings in a series of more than 100 cases. In fourteen cases of occlusion of the common duct by stone, tumor or pancreatic disease, a strong immediate direct reaction was obtained. Serum from nine patients with chronic cholecystitis gave only the delayed or negative direct reaction, and the indirect reaction gave a value above normal in only one case. Eleven cases of chronic calculous cholecystitis gave negative or delayed direct reactions, with indirect readings from 0.2 to 1.9 units. In fourteen cases of secondary anemia, the indirect result was always within the normal range. In fourteen cases of pernicious anemia, the billirubin in the serum was high—from 0.7 to 4

units in eleven cases; 0.6, or high normal, in two cases; well within normal limits, 0.4, in one case. Four cases of hemolytic ictero-anemia showed a greatly increased amount of bilirubin of the hemolytic type, in the serum, from 1.5 to 4 units. In three cases of leukemia and one case of purpura hemorrhagica low normal values were obtained.

Use of Lipiodal to Locate Spinal Cord Block.—According to Ebaugh the intracistern injection of lipiodal (lipiodol?), with accompanying roentgenographic studies, is of definite value for the accurate localization of spinal cord block. In spinal cord tumor the use of lipiodal should lead to earlier operation and its use may be further indicated to be of value in acute inflammatory conditions, such as may arise in the treatment of, or following epidemic meningitis (subarachnoid spinal block). There were no marked subjective reactions experienced in the use of lipiodal. It is logical that lipiodal should always be injected into the cisterna magna since it gravitates and seeks the lowest level and thereby localizes at any site of obstruction.

New Apparatus for Transfusion.—An apparatus is described by Feinblatt which can conveniently be adapted to various therapeutic and diagnostic procedures, namely, blood transfusion, hypodermoclysis, intravenous infusion, phlebotomy and the removal of fluid from the body cavities. It has also been successfully employed for the induction of artificial pneumothorax in animals.

Traumatic Heart Wounds Heal.—The three cases presented by Vance are of value in that they suggest conditions under which healing can take place in the heart wall. In one case a 32 caliber bullet without penetrating the heart cavity cut a tunnel in a segment of the heart muscle that was not duly vascular. There was practically no hemorrhage into the pericardial cavity and death seemed to be due to a spinal cord lesion and lobar pneumonia. In the second case the heart and aorta were perforated by a small 25 caliber bullet in such a manner that bleeding was slight at the start, the patient experiencing no trouble from his cardiac injury until eight days afterward, when the edges of the wound were suddenly forced apart and death resulted from sudden hemorrhage in the pericardium. In the third case, the remarkable feature was the encapsulation of the bullet in the right ventricle with healed scars of the right auricle and the right lung, demonstrating the manner in which the bullet had reached its final resting place many years before. Death in this case was due to a recent injury which had no connection with the old bullet wound. In all three cases the bullets left wounds in the heart of such a nature that the primary complications were avoided and conditions were favorable for the process of repair.

Gumma Causes Heart Block.—A case of heart block due to gumma of the ventricular septum is reported by Clarke and Smith. The diagnosis of gumma was conclusively proved by the demonstration of *Spirochaeta pallida* in the ventricular tissues. The possibility of gallbladder infection as a primary or accessory cause of heart block is discussed, and a case illustrating this possibility is presented in which the heart regained and has maintained normal sinus rhythm since the removal of the infected gallbladder.

Postoperative Obstructive Jaundice.—A case of postoperative obstructive jaundice is reported by Judd and Burden. Significant laboratory studies were made of the blood before and after operation. There was no evidence of recurrence more than two and a half years after removal of a cancer of the gallbladder. A method is described of decompression of the liver by multiple needle punctures into the liver parenchyma.

American Journal of Physiology, Baltimore

123: 1-274 (June) 1925

Effect of Secretin and Pilocarpin on Blood Lipase of Dogs. P. V. Prewitt, New York.—p. 1.
*Physiology of Reproduction in Birds. XX. Reciprocal Size Changes of Gonads and Thyroids in Relation to Season and Ovulation Rate. O. Riddle, Cold Spring Harbor, N. Y.—p. 5.
Frequency of Motor Nerve Impulses in Crossed Extension Reflex as Shown by Alcohol Block Method. A. Forbes and J. M. D. Olmstead, Boston.—p. 17.
Relation Between Night Blindness and Malnutrition. Influence of Deficiency of Fat Soluble A Vitamin in Diet on Visual Purple in Eyes. L. S. Fridericia and E. Holm, Copenhagen, Denmark.—p. 42.
Demonstration of Hemeralopia in Rats Nourished on Food Devoid of Fat-Soluble-A-Vitamin. E. Holm, Copenhagen, Denmark.—p. 79.
Passage of Water Through Skin of Frog, and Relation Between Diffusion and Permeability. E. F. Adolph, Baltimore.—p. 85.
*Physiology of Vitamins. III. Relation Between Vitamin B and Appetite. G. R. Cowgill, H. J. Deuel, Jr., and A. H. Smith, New Haven, Conn.—p. 106.
*Comparison of Gaseous Content of Blood from Veins of Forearm and Dorsal Surface of Hand as Indicative of Blood Flow and Metabolic Differences in These Parts. S. Goldschmidt and A. B. Light, Philadelphia.—p. 127.
Effect of Local Temperature on Peripheral Circulation and Metabolism of Tissues as Revealed by Gaseous Content of Venous Blood. S. Goldschmidt and A. B. Light, Philadelphia.—p. 146.
*Cyanosis Unrelated to Oxygen Unsaturation, Produced by Increased Peripheral Venous Pressure. S. Goldschmidt and A. B. Light, Philadelphia.—p. 173.
Circulation and Its Measurement. Y. Henderson and H. W. Haggard, New Haven, Conn.—p. 193.
Effect of Ether on Pressor Response to Epinephrin in Pithed Cats. L. C. Wyman and B. R. Lutz, Boston.—p. 254.
Effect of Low Blood Pressure and Ether Anesthesia on Blood Alkali. B. R. Lutz and L. C. Wyman, Boston.—p. 264.

Seasonal Changes in Thyroid, Testes and Ovaries.—Data are given by Riddle showing coincident seasonal changes in the weight of thyroids, testes and ovaries of three kinds of pigeons. The seasons (autumn and winter) of increased thyroid size are seasons of diminished size of testis and ovary. The seasons (spring and summer) of decreased thyroid size are seasons of increased size of testis and ovary. The seasons of free or frequent ovulation coincide with periods of decreased thyroid size and of increased gonad size. The period of restricted ovulation—and of numerous clutches composed of single eggs—coincides with the period of enlargement in the thyroid.

Relation Between Vitamin B and Appetite.—A yeast vitamin concentrate and a wheat embryo preparation containing vitamin B were tested by Cowgill, Deuel and Smith for their appetite-promoting power on dogs fed an artificial food mixture adequate for maintenance, except with respect to vitamin B. Trials with single large doses gave results indicating that a relationship exists between the amount of the vitamin-containing material, the size of the animal in terms of the body weight, and the number of days over which the appetite is completely restored. Evidence was obtained that maintenance of the desire to eat over a period of two months is not complete proof that the dog's vitamin B requirement is being entirely satisfied. Control experiments with commercial beef extract, which does not contain vitamin B, but does promote the flow of gastric juice, showed that this substance does not restore the desire to eat in animals suffering from vitamin B deficiency. From these experiments it may be concluded also that vitamin B does not owe its restorative effect on the appetite, as might be supposed, to any increased flow of gastric juice which it may produce.

Oxygen Saturation of Hemoglobin.—Goldschmidt and Light found that the oxygen saturation of the hemoglobin of the blood from veins on the dorsal surface of the hand or wrist is higher, and the carbon dioxid content lower, than that of blood taken from veins of the forearm in the antecubital fossa. Hypotheses which account for the necessity for a rapid circulation of blood through the hand, and speculations upon the mechanism of accomplishment are presented.

Cyanosis Unrelated to Oxygen Unsaturation.—Evidence is presented by Goldschmidt and Light which shows that when the arm is allowed to hang down and kept stationary the resulting engorgement of the capillaries and the venules of the hand may be a primary cause of blueness of the skin in the absence of an increased oxygen unsaturation of the blood in these vessels. The suggestion is presented that at a given oxygen unsaturation of the blood, the color transmitted to the skin will depend on the ratio between the extent of the capillary and the venule dilatation. On the basis of this conception may be reconciled the observation that, at approximately the same degree of blood oxygen unsaturation, the skin is pink when exposed to mild heat or extreme cold while it is blue when the arm is hung down. The blueness of cold and the rose-red or purple of heat are also discussed.

American Review of Tuberculosis, Baltimore

11: 275-374 (June) 1925

*Tuberculosis in Children. G. J. Drolet, New York.—p. 292.
*Human Resistance to Tuberculosis at Various Ages of Life. A. K. Krause, Baltimore.—p. 303.
*Experimental Study of Comparative Resistance of Young and Old Guinea-Pigs to Tuberculosis. A. K. Krause, Baltimore.—p. 355.

Tuberculosis in Children.—Drolet shows that during the last twenty-six years in New York City 28,762 deaths from various forms of tuberculosis have been reported among children under 15 years of age. In 1898, 1,370 such deaths were registered among a total childhood population estimated at 1,002,767. In 1923, with a child population increased by more than 675,000 (to 1,679,252), the tuberculosis deaths numbered only 547. The former death rate of 136 per hundred thousand was reduced to 33, or by 76 per cent. In children under 15 tuberculous meningitis causes one half of the deaths. The death rate from this cause in children in New York City has been reduced from 78 to 17 per hundred thousand, or by 78 per cent., between 1898 and 1913. In this group of children pulmonary tuberculosis is the next important type after the meningeal form, and nearly one third of all of the tuberculosis deaths among children were of that form; but the death rate, which formerly was 31, had been reduced to 10, or by 68 per cent. Pulmonary tuberculosis in children, though it has also greatly declined in New York, has not been reduced quite as fast as the other forms. The abdominal type of tuberculosis in children under 15 in New York City, though causing a large proportion of the deaths, shows the greatest decline. Until recently the death rate from tuberculous peritonitis frequently reached 7 and 8 per hundred thousand, whereas in the last couple of years it has gone down to one. Drolet is convinced that the measures which the health authorities of New York City have adopted, first, complete pasteurization of all milk, except the certified, and second, the annual examination of almost 100,000 food handlers, must be given the greater share of credit in the gains against this form of tuberculosis, largely due to infection from food supplies.

Resistance to Tuberculosis at Various Ages.—Krause closes this detailed study with these words: If susceptible mankind are natively more or less resistant to tuberculosis according as they are older or younger, then other susceptible species should, under the proper conditions, exhibit the same variations in degrees that are marked enough to be detectable. And the most enlightening commentary on the whole matter is that experiments have thus far either failed to disclose significant differences according to age or have resulted equivocally.

Comparative Resistance of Old and Young Animals to Tuberculosis.—The experiments reported on by Krause show that when young and old guinea-pigs are infected intracutaneously with relatively small quantities of virulent tubercle bacilli that are equal for all the animals, there is an earlier appearance and more vigorous development of tubercle at the site of inoculation and in the regional lymph nodes in the old animals. After infection of this nature and heavy enough to cause generalized tuberculosis in the old animals, both young and old guinea-pigs developed essentially the same grade of infection. There was nothing to indicate that the young were more susceptible than the old. When injected subcutaneously with large quantities of virulent tubercle bacilli in equal dosage, a more extensive and progressive involvement resulted in the young than in the old. Since under these circumstances the young received, per body weight, double the quantity of tubercle bacilli that was sufficient to cause progressive and fatal tuberculosis in the old, it is likely that the more advanced infection of the young was the result of "overdosage.

Annals of Surgery, Philadelphia

81: 1053-1222 (June) 1925

Method for Exposing Anterior Portion of Frontal Lobes of Brain. E. Sachs, St. Louis.—p. 1053.
*Diagnosis and Surgical Treatment of Tumors of Spinal Cord. End Results in 119 Operations. C. A. Elsberg, New York.—p. 1057.
*Bone Tumors; Analysis of One Thousand Cases. F. C. Christensen, Racine, Wis.—p. 1074.
Plexiform Neuroma of Arm; Case. M. F. Mullen, Pocatello, Idaho.—p. 1093.
*Final Results of Operative Treatment of Gastric Ulcer. K. A. Meyer, W. A. Brams and W. N. Graves, Chicago.—p. 1102.
*Operative Treatment of Arthritis Deformans of Hip Joint. R. Whitman, New York.—p. 1108.
*Prostatic Abscess. L. Herman and J. Carp, Philadelphia.—p. 1115.
Spastic Obstruction to Ureters. T. N. Hepburn, Hartford, Conn.—p. 1133.
Torsion of Spermatic Cord; Two Cases. M. Thorek, Chicago.—p. 1142.
Traumatic Aneurysm of Brachial Artery Treated by Excision and End-to-End Arterial Suture. W. W. Babcock, Philadelphia.—p. 1150.
Postoperative Complications. J. B. Mencke, Philadelphia.—p. 1160.
Surgical Service at Hospital of University of Pennsylvania. I. S. Ravdin, Philadelphia.—p. 1164.

Tumors of Spinal Cord.—Elsberg performed 119 laminectomies for spinal cord tumor, and 270 laminectomies for other affections. Thus of the total of 389 spinal operations, 119, or 30 per cent., were performed on 114 patients for verified new growths within the spinal canal. The operative mortality for extramedullary tumors was: 106 cases, 10 deaths; for intramedullary tumors: 14 cases, 3 deaths. The extramedullary tumor operations were: intradural extramedullary tumors, 69 cases, 5 deaths; tumors of conus and cauda equina, 12 cases, 3 deaths; extradural tumors, 25 cases, 2 deaths. Elsberg says that the end-results after operations for spinal cord tumor, when complete eradication of the growth is possible and the paralytic symptoms have not been of more than two or three years' duration, are very good. Seventy-two per cent. of the patients recovered entirely or are so much improved that they can return to their work. When, however, the growth cannot be removed entirely, either because it is within the substance of the cord and not well localized, or because of the extensive nature of the growth and its intimate relation to other structures, the results are, in the main, unsatisfactory. Some of these patients may be much benefited by the decompressive effect of the laminectomy and the partial removal of the growth, and may improve very much for a number of years.

Bone Tumors.—An analysis made by Christensen of 1,000 cases of bone tumor collected from various sources shows that of osteogenic sarcoma 58.7 per cent. occur in the male, and 41.3 per cent. occur in the female. The highest age incidence for osteogenic sarcoma, for both sexes, is in the second decade of life, although more than 33 per cent. occur after the thirtieth year. The epiphyses are not involved in at least 33 per cent. of osteogenic sarcomas at the diaphyseal ends of long bones. Both sexes are about equally affected with giant-cell tumors, namely female, 53 per cent.; male, 47 per cent. Giant-cell tumors are most common in the third decade of life, but 32 per cent. occur after the thirtieth year. Myeloma (multiple myeloma) is not a disease limited to adult life; 39 per cent. of cases occur before the twenty-first year. Benign angiomas must be considered in every diagnosis of a vascular tumor of the bone. Solitary diffuse endothelioma is not an uncommon tumor, especially in younger people. Predisposing sites for osteogenic tumors, benign and malignant, and giant-cell tumors, are at the ends of long bones, where there is an epiphyseal disk of maximal growth, where the growth is longest, and where the natural growth momentum is greatest.

Surgical Treatment of Gastric Ulcer.—Twenty-two cases subjected to the Polya operation of pyloric resection with gastro-enterostomy are analyzed by Meyer, Brams and Graves. There was an absence of free hydrochloric acid in the stomach contents in all of the eighteen cases which were reexamined; the emptying time, as determined by the roentgen ray, was rapid in ten out of fifteen cases which were reexamined; the intestinal functions were normal in nine out of twelve instances, and diarrhea was present only in one case and the patients as a whole were greatly improved after operation, as shown by freedom from symptoms, gain in weight and a return to their former occupations. No ill effects were noted after the operation and diarrhea was present in only one of the reexamined cases. With the exception of one death, and one patient who was doing only light work, all patients made a complete recovery without further symptoms and were back at their regular occupations.

Operation for Arthritis Deformans of Hip Joint.—Whitman states that the reconstruction operation may be considered as the preferable alternative to arthrodesis for all cases of arthritis deformans of the hip of a favorable type.

Prostatic Abscess.—Herman and Carp analyze twenty cases of prostatic abscess treated by extra-urethral prostatotomy. Eighteen patients may be classified as cured. Three of the patients had some complication, necessitating further operative procedures. One patient had severe bleeding into the bladder and epididymitis; another had a fistula; while the third had a severe bleeding from the bladder, staphylococcic pyemia and lung abscess (with secondary hemorrhage from the lung, necessitating blood transfusion). Two patients were classified as improved but not cured; one (a tabetic) had a urinary fistula; a second had had a small persistent fistula in a lateral perineal incision for years.

Archives of Internal Medicine, Chicago

35: 671-818 (June) 1925

*Standardization of Thyroid Preparations. R. Hunt, Boston.—p. 671.
*Nausea and Related Sensations Elicited by Duodenal Stimulation. R. W. Keeton, Chicago.—p. 687.
*Significance of Urobilogen in Urine as Test for Liver Function. G. B. Wallace and J. S. Diamond, New York.—p. 698.
Blood Volume. IV. Diurnal Fluctuations Incident to Transfusion Reaction. W. Ashby, Rochester, Minn.—p. 726.
Id. V. Effect of Treatment in Cases of Pernicious Anemia. W. Ashby, Rochester, Minn.—p. 733.
Mechanism of Reaction of Nonspecific Protein Agents in Treatment of Disease. II. Influence of Various Agents on Mobilization of Blood Antibodies. C. Y. Ling, Philadelphia.—p. 740.
Id. III. Blood Enzymes. C. Y. Ling, Philadelphia.—p. 752.
*Hourly Hemoglobin Variations in Anemias. E. S. Mills, Montreal.—p. 760.
Electrocardiogram and Blood Pressure During Surgical Operation and Convalescence. H. M. Marvin and R. B. Pastor, New Haven, Conn.—p. 768.
*Id. Effect of Routine Preoperative Digitalization. H. M. Marvin, R. B. Pastor and M. Carmichael, New Haven, Conn.—p. 782.
Involuntary Nervous System: Important Factor in Body's Resistance. E. F. Muller, New York.—p. 797.
Diseases of Pancreas. M. Barron, Minneapolis.—p. 807.

Standardization of Thyroid Preparations.—Hunt found that the physiologic activity of thyroid preparations, as determined by the acetonitril test on mice and by clinical observations, was closely parallel to the iodin content. Little or no physiologically inactive iodin was found by these tests in the thyroids of adult animals. Very small amounts of nonthyroid iodin in adulerated thyroid preparations could be detected by the acetonitril test and also by simple chemical tests. Very few of the thyroid preparations on the market comply with the U. S. P. standard; they were found to vary greatly in physiologic and therapeutic activity.

Sensations Arising from Duodenal Stimulation.—A study was made by Keeton of the sensations arising from duodenal stimulation in a group of patients of whom many showed symptoms of circulatory instability. Chief among these sensations was nausea. Dizziness, pressure sensations referable to the head and neck, headache and syncope also were elicited. When the mechanism of the production of these sensations was considered, it was suggested that nausea resulted from a motor duodenal dysfunction, most probably from a pathologic antiperistalis. The other sensations were regarded as of circulatory origin, and were explained on the basis of a reflex spread into the vegetative (sympathetic-autonomic) nervous system, involving primarily the vasomotor mechanism.

Liver Function Test.—The quantitative test devised by Wallace and Diamond is dependent on Ehrlich's aldehyd reaction, and consists of a series of dilutions of the urine carried to a point where no further reaction takes place. The reading is made by looking through the mouth of the test tube, holding the tube obliquely against a white background. Dilutions may be made with plain tap water. The test has been found six times as sensitive as the spectroscopic method of Wilbur and Addis.

Hemoglobin Variations in Anemia.—The question of variations not only in the percentage of hemoglobin but in the colon index, red cell volume and plasma cell ratio over two hour periods has been investigated by Mills in a series of sixteen cases of anemia. Of these, ten were of the pernicious or addisonian type. The findings were: hourly variations in the percentage of hemoglobin of the blood, which have been shown to occur in normal persons, take place in anemia, though to a lass extent. Hourly variations in the average size of the erythrocyte may be considerable. A definite relation between the percentage of hemoglobin and the cell surface seems to exist in a certain percentage of the cases.

Effect of Preoperative Digitalization on Blood Pressure.—The blood pressure was determined by Marvin et al. and electrocardiograms were taken at frequent intervals during anesthesia and operation in thirty patients who had been completely digitalized. There is no convincing evidence that the preoperative administration of digitalis exerts a favorable influence on the blood pressure or the incidence of postoperative complications in a group of unselected patients. There is suggestive evidence that the drug tends to cause the precise change in blood pressure which it is usually given to prevent. There is no apparent necessity or justification for its routine employment in patients who possess normal hearts.

Archives of Neurology and Psychiatry, Chicago

13: 681-812 (June) 1925

Papillomas of Chloroid Plexus: Six Cases. L. E. Davis, Chicago, and H. Cushing, Boston.—p. 681.
*Position of Head in Cerebral Tumors Above and Below Tentorium. H. W. Stenvers, Utrecht, Holland.—p. 711.
Self-Stimulation Habits of Young Wild Animals. C. P. Richter, Baltimore.—p. 724.
Biologic Diagnosis of States of Excitement and Depression. H. Claude, D. Santenoise and R. Targowla, Paris, France.—p. 729.
*Blood in Personality Disorders. G. W. Henry and E. Mangam, White Plains, N. Y.—p. 743.
Reflexes of Different Order Elicitable from Abdominal Region. G. H. Monrad-Krohn, Oslo, Norway.—p. 750.
*Hyperthermia. K. Kornblum, Philadelphia.—p. 754.
Lipoidol Test for Patency of Cerebrospinal Canal in Sciatica (?). N. Viner, Montreal.—p. 767.

Position of Head in Cerebral Tumors.—Stenvers says that in cases of supratentorial tumor, the patient moves his head backward. The fluid can then flow more easily out of the third ventricle, and the medulla oblongata does not then rest on the dens epistrophei. In cases of subtentorial tumor, the patient will, in suitable cases, keep his head forward to enlarge the communication of the fourth ventricle and cisterna, to enlarge the cisterna and to free the medulla oblongata from pressure.

Blood in Personality Disorders.—Determinations made by Henry and Mangam of the carbon dioxid combining power of the blood plasma of 200 patients consecutively admitted to the hospital indicate that this combining power is unaffected by psychoses unless there is some definite accompanying physical disease. Determinations of the urea nitrogen content of the whole blood of 143 patients consecutively admitted gave negative results. Further studies of the nonprotein nitrogen, uric acid, dextrose and chlorid content of the blood of persons suffering from personality disorders corroborate the negative results reported by other observers. Glucose tolerance tests show more or less characteristic changes in the glucose content of the blood of patients in either phase of affective psychoses and in the acute stages of dementia praecox. These changes indicate a definite retardation of functions of the vegetative nervous system in manic-depressive depression and in the acute stages of dementia praecox and an acceleration of these same functions in manic-depressive excitement.

Hyperthermia.—In only six of a series of thirty experiments done by Kornblum in which destructive lesions were produced in the brain of the dog did the temperature exceed that normally observed in this animal. By means of such lesions, a condition simulating so-called "medullary edema" did not result. The hyperthermia of "medullary edema" is not dependent on a lesion in any definite area of the brain, but is rather the result of a disturbance of widely distributed reflex arcs essential to the maintenance of body temperature. The existence of a cerebral heat center is not confirmed.

Archives of Otolaryngology, Chicago

1: 587-688 (June) 1925

Stenosis of Larynx in Laryngeal Tuberculosis; Four Cases. F. L. Dennis, Colorado Springs, Colo.—p. 586.
Use of Ivory in Rhinoplasty. J. Maliniak, Cincinnati.—p. 599.
Capillary Hemangio-Endothelioma of Nose; Case. B. S. Sharp and G. H. Hansmann, Iowa City.—p. 612.
Pemphigus from Laryngologist's Standpoint. G. B. New and P. A. O'Leary, Rochester, Minn.—p. 615.
Cicatricial Stenosis of Trachea; Three Cases. C. J. Imperatori, New York.—p. 624.
Diagnostic Bronchoscopy; Infant Four Months Old. E. J. Patterson, Pittsburgh.—p. 629.
Closure of Laryngostomic Fistulas. C. F. Nassau, Philadelphia.—p. 632.
"Fractional Fatigue" of Olfactory Apparatus. A. W. Proetz, St. Louis.—p. 638.
Control of Pain Through Nasal (Sphenopalatine) Ganglion. C. L. Davis, St. Louis.—p. 642.
New Endoscope for Closing Safety Pins. A. J. Shekter, Jamaica, Long Island.—p. 643.
Progress in Otolaryngology. J. K. M. Dickie, Ottawa, Canada.—p. 646.

Journal of Experimental Medicine, Baltimore

41: 691-848 (June) 1925

*Relationship Between Growth Capacity of Primary Tumors and Distribution of Metastases of Transplanted Tumor of Rabbit. C. M. Van Allen, New York.—p. 691.
*Experimental Obstruction of Jejunum. Effect of Sodium Chlorid Introduced into Intestine Below Obstruction. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 707.
*Urobilin Physiology and Pathology. III. Absorption of Pigments of Biliary Derivation from Intestine. P. D. McMaster and R. Elman, New York.—p. 719.
Relative Reaction Within Living Mammalian Tissues. IV. Vital Staining with Phthaleins, P. Rous, New York.—p. 739.
Skin Reactions to Simultaneous Treatments with Radiant Heat and Soft Roentgen Rays. J. A. Hawkins and H. Clark, New York.—p. 761.
*Liver as Source of Bacterial Agglutinin. F. S. Jones, Princeton, N. J.—p. 767.
Surface Tension of Serum. XIII. Physicochemical Changes in Serum as Result of Immunization. P. L. du Noüy, New York.—p. 779.
*Occurrence of Stigmata of Congenital Syphilis in Rabbits; Factor of Inheritance. W. G. Brown and L. Pearce, New York.—p. 795.
*Experimental Production and Transmission of Tar Sarcomas in Chickens. J. B. Murphy and K. Landsteiner, New York.—p. 807.
*Group of Micro-Organisms Transmitted Hereditarily in Ticks and Apparently Unassociated with Disease. E. V. Cowdry, New York.—p. 817.

Growth Capacity of Primary Tumors and Distribution of Metastases.—As an adjunct to the study of a transplantable malignant tumor of the rabbit, an index of malignancy has been developed by Van Allen which has proved useful in evaluating the severity of the disease for the purpose of statistical investigations. From this analysis it is concluded: (1) that the severity of the disease, as a whole, is very irregular among individuals of a series and from series to series, and (2) that the relationship between the extent of the primary lesions and that of the secondary lesions is inconstant among individuals but assumes definite proportions when the data are viewed in the mass. An attempt has been made to account for these results in the light of what has been ascertained of the modes of defense of the rabbit host against the inroads of the cells of this transplanted tumor.

Experimental Obstruction of Jejunum. — The results obtained by Haden and Orr emphasize again the constancy of the changes in the blood of the dog following high intestinal obstruction. Every animal shows a fall in chlorids and many have an increased carbon dioxid combining power of the blood plasma. In most cases there is a rise in the urea nitrogen and nonprotein nitrogen. The change in the chlorids is, however, the one constant finding. The results in the animals treated by the introduction of sodium chlorid solutions into the intestine below the point of obstruction are similar to those obtained when animals are given sodium chlorid subcutaneously and intravenously. The findings are of special interest in adding further evidence of the value of sodium chlorid in the treatment of the toxemia incident to intestinal obstruction. It is evidence that the sodium chlorid introduced directly into the lumen of the intestine is well absorbed and as efficacious as when given subcutaneously or intravenously.

Absorption of Bile Pigments.—Direct proof of the absorption of bile pigments from the intestinal tract is presented by McMaster and Elman.

Liver as Source of Bacterial Agglutinin.—Jones found that the greatest concentration of small amounts of antigen were killed within a short period. The serum of those more highly immunized contained the greatest concentration of antibody. A single injection of antigen into a radicle of the mesenteric vein resulted in a considerable concentration of agglutinin in the liver. Other experiments indicated that the liver does not act as a reservoir for the antibody. It has also been shown that this concentration of agglutinin cannot be ascribed to the blood left within the liver, since the blood serum was relatively poor in antibody. The experiments indicate that the agglutinin was produced within the liver.

Stigmas of Congenital Syphilis.—The occurrence of stigmas of syphilis in the progeny of syphilitic rabbits and the probable cause for such conditions in cases in which no infection can be demonstrated is discussed by Brown and Pearce. The history of a group of animals presenting these conditions is given, and the possible causes are discussed in the light of evidence derived from a study of these animals. In this instance, it appeared that the lesions suggesting syphilis were of functional rather than of infectious origin, and that heredity was an important factor in determining their occurrence.

Experimental Tar Sarcoma.—Murphy and Landsteiner report the occurrence of two spindle cell sarcomas that developed as the result of the injection of coal tar into induced embryomas in chickens. One of these, transplanted to other chickens for eleven generations, is highly invasive in character, and metastasizes freely. Attempts to transmit this neoplasm by a filtrate or desiccate of the tumor have failed of success.

Micro-Organisms Transmitted Hereditarily.—Pleomorphic, bacterium-like, gram-negative, intracellular micro-organisms, which stained much less intensely with ordinary dyes than most bacteria were found by Cowdry in sixteen species of ticks comprising examples of *Argasidae* and *Ixodidae*. No evidence was seen of injury to the tissues of the arachnid hosts of the micro-organisms other than that incident to mechanical distention of the cells containing them. The detection of the micro-organisms in the eggs of ten species, in the unfed larvae of eight species, and at nearly related stages throughout the life cycle of three others leads to the conclusion that they are transmitted hereditarily.

Journal of Infectious Diseases, Chicago

36: 501-580 (June) 1925

*Production of Local Immunity by Means of Diphtheria Toxin. J. A. Bowen, Cincinnati.—p. 501.
*Blood Changes in B. Welchii Infection. B. S. Cornell, Toronto.—p. 508.
*Habitat of B. Histolyticus in Human Intestine. J. C. Torrey, New York.—p. 516.
*Precipitating and Neutralizing Scarlatinal Antistreptococcus Horse Serum. E. C. Rosenow, Rochester, Minn.—p. 525.
Methylene Violet and Methylene Azure A and B. A. J. MacNeal, New York.—p. 538.
*Hemolytic Properties of Whole Cultures and Sediments of Hemolytic Streptococci. N. P. Sherwood and C. M. Downs, Lawrence, Kan.—p. 547.
Dormancy in Bacteria. V. Burke, A. Sprague and L. Barnes, Pullman, Wash.—p. 555.
Coccidioides Immitis. W. S. Bump, Chicago.—p. 561.
*Relationship of Hard Water to Health. J. T. Myers, Omaha.—p. 566.

Local Immunity in Diphtheria.—Bowen has succeed in producing local immunity to diphtheria of at least two months' duration. The local immunity is apparently accompanied by a low degree of general immunity.

Welch Bacillus Causes Anemia.—By infecting rabbits with *B. welchii*, Cornell was able to produce a chronic anemia of varying degree. The blood picture presents, as its chief point of interest, the constant phenomenon of anisocytosis.

Habitat of Bacillus Histolyticus in Intestine.—The recovery of *B. histolyticus* from the ileocecal region of two persons is reported by Torrey. One had a severe and long standing epilepsy, and the other a chronic constipation with marked

stasis in the cecum and colon. In addition, the organism was isolated from specimens from the stools of two other persons suffering from abnormal intestinal conditions. The occurrence of this organism in the lower ileum and cecum suggests the possibility of absorption of its toxic products.

Studies on Hemolytic Streptococci.—The experiments on toxicity and neutralization made by Rosenow not only support the newer results obtained in scarlet fever by the Dicks and by Dochez, but also show that great differences occur in the toxin producing power of scarlatinal and nonscarlatinal strains of hemolytic streptococci, and that certain strains possess this power to a high degree years after isolation. Moreover, they show that it is possible to produce in the horse a neutralizing serum by intravenous injection of dead and living hemolytic streptococci from scarlet fever. Rosenow wonders whether specificity in the scarlatinal hemolytic streptococcus may not be an expression of high toxin producing power and of other peculiar acquired properties in the hemolytic streptococcus group.

Streptolysin and Hemolytic Sediments.—The similarity and differences of streptolysin and hemolytic sediments are pointed out by Sherwood and Downs. The evidence points toward an identical mechanism.

Hard Water Not Cause of Urinary Calculus.—No evidence was found by Myers proving hard water to be an etiologic factor in urinary concretion formation.

Journal of Laboratory and Clinical Medicine, St. Louis

10: 695-786 (June) 1925

*Insulin: Intradermal Injection. E. F. Müller and H. B. Corbitt, New York.—p. 695.
*Carbohydrate Metabolism of Infants. F. F. Tisdall, T. G. H. Drake and Alan Drake, Toronto.—p. 704.
*Dietetic Management of Cardiac, Vascular and Renal Disease. J. R. Darnall, Washington, D. C.—p. 712.
*Pneumococcolytic Activity of Bile from Experimental Bacteriol Cholecystitis of Rabbits. M. J. Harkins, Philadelphia.—p. 716.
*Simple and Rapid Quantitative Test for Albumin in Urine. W. G. Exton, New York.—p. 722.
Influence of Acids on Viability of Bacteria. H. Yaoi, Tokyo, Japan. —p. 735.
Kolmer's Cholesterinized Versus Acetone Insoluble Antigen. W. H. Kellogg, Berkeley, Calif.—p. 751.
*Preparation and Clinical Tests of Antistreptococcus Serum. N. S. Ferry, R. W. Pryer and L. W. Fisher, Detroit.—p. 753.
*Effect of Constipation and Catharsis on Urobilinuria. R. S. Dean, Cleveland.—p. 757.
Local Anesthesia. I. Türck's Reflex Method to Determine Efficiency of Anesthetics. W. J. R. Heinekamp, Chicago.—p. 763.
Method for Sampling and Analysis of Stomach Gas. A. D. Dunn and F. L. Dunn, Omaha.—p. 769.

Intradermal Injection of Insulin.—The effect of insulin varies with the route of administration. Müller and Corbitt assert that the effect of insulin injections on the blood sugar content of normal rabbits is markedly increased if the intradermal method of administration is employed; subcutaneous injections of the same amount of insulin into the same as well as into different animals are less effective. A comparison of intradermal, subcutaneous and intravenous injections of equal amounts of insulin shows that their effectiveness decreases in the order mentioned. The degree and the period of effectiveness does not depend on the rapidity of resorption, but on a hitherto unknown factor, very probably related to the action of the involuntary nervous system. This property seems to be inherent in the skin rather than in the subcutaneous tissues or in the body fluids.

Carbohydrate Metabolism of Infants.—A procedure has been devised by Tisdall, Drake and Brown whereby blood sugar determinations may be made with the use of only 0.2 c.c. of blood. The procedure is based on the Shaffer-Hartmann method. The results obtained are usually accurate within 5 per cent. The average fasting concentration of blood sugar in twenty approximately normal infants was found to be 0.087 per cent. In twelve cases of marasmus, the average concentration was 0.07 per cent. Values as low as 0.05 per cent. were obtained in the latter group. When 5, 10 and 15 per cent. solutions of glucose are given interstitially to normal infants the blood sugar curve reaches its height about half an hour after the injection is given. This rapidity of absorption is of practical value when an intravenous injection cannot be given readily. The rise in blood sugar concentration in normal infants is more marked after the interstitial injection of 5 per cent. glucose. The fall in the blood sugar curve after interstitial injections of glucose occurs with remarkable rapidity. The intravenous injection in normal infants of large amounts of glucose; i. e., 1 gm. of glucose per pound of body weight, is followed by a rapid diminution of the blood sugar concentration, after the preliminary rise. One hour after injection, the concentration may actually be less than that found before the injection. Infants with conditions such as acute intestinal intoxication and fermentative diarhea, are unable to utilize glucose introduced parenterally with the same rapidity as normal infants. Attention is again directed to the remarkable ability of the normal infant to utilize glucose introduced parenterally.

Dietetic Management of Cardiovascular Renal Disease.—No attempt is made by Darnall to give detailed advice or set dogmatic rules, but only to present general plans for the logical dietary treatment for cases of cardiocirculatory impairment and renal insufficiency. Certain dietary principles are given which may serve as a flexible guide to the dietary management of these closely associated and often overlapping pathologic conditions.

Experimental Bacterial Cholecystitis.—A bacterial cholecystitis was produced by Harkins in rabbits by the direct injection of *Streptococcus mitis, Staphylococcus aureus, Staphylococcus albus* and *B. coli-communior* into the gallbladder. The bile from these gallbladders, except in the case of injection of *B. coli-communior*, loses its pneumococcolytic activity. The pneumococcolytic activity of bile from cholecystitis of rabbits produced by *B. coli-communior*, while present, is somewhat delayed and in vivo this result was confirmed. Of twenty-four human bile specimens tested for pneumococcolytic activity, all were found to possess this characteristic. Suspension of *Streptococcus mitis, Staphylococcus aureus* and *S. albus, B. coli-communior*, and leukocytes in normal rabbit bile did not remove the activity. Also cultures of the micro-organisms in 10 per cent. bile medium failed to remove this characteristic.

Quantitative Test for Albumin in Urine.—A simple and rapid quantitative test for albumin in urine is described by Exton. Every contingency which is known to arise in the examination of urine for albumin is said to be met by the method, which requires no more time or manipulation for its performance than do the qualitative clinical tests in common use. The specific and quantitative features of the new test impart an accuracy and uniformity to albumin determinations which make them clinically valuable to a degree hitherto impossible. The precipitant is used in the form of a single solution which appears to keep indefinitely. It contains sulphosalicylic acid, 50 gm., sodium sulphate (crystals), 10 gm., bromphenol blue (clear, saturated, 0.4 per cent. watery solution), 25 c.c., and distilled water to make 1 liter. The mixture should be filtered.

Antiscarlet Fever Serum.—An antistreptococcus scarlatina serum has been prepared by Kellogg with both antitoxic and antibacterial properties. This serum has proved of value as a therapeutic agent in scarlet fever. The serum has been concentrated to at least six times it original strength with favorable clinical results.

Effect of Constipation on Urobilinuria.—Dean states that constipation exaggerates a pathologic urobilinuria. Evacuation of the bowel diminishes it.

Medical Journal and Record, New York

72: 1-60 (July 1) 1925

The New Surgery. H. A. Kelly, Baltimore.—p. 1.
Electrocoagulation in Surgery. W. D. McFee, Boston.—p. 3.
Digestive Symptoms Caused by Disease of Abdominal Vessels. I. W. Held, New York.—p. 6.
Asthma with Pneumothorax. C. A. Spivacke, New York.—p. 10.
Clinical and Roentgen-Ray Considerations of Duodenal Ulcer. J. S. Diamond, New York.—p. 12.
Plea for Early Operation in Diseases of Gallbladder. M. E. Blahd, Cleveland.—p. 17.
Psychosis Following Surgical Operations. A. L. Soresi, New York. —p. 20.

Chronic Prostatitis; Focal Aspects. J. E. Holloway and W. H. Von Lackum, Rochester, Minn.—p. 23.
Renal Function Determination Aided by Use of Sodium Salicylate Intravenously. A. Strachstein, New York.—p. 28.
Regional Anesthesia in Urologic Surgery. W. S. Pugh, New York.—p. 30.
Strangulated Inguinal Hernia of Urinary Bladder. C. F. Horne, Baltimore.—p. 32.
Value of Uranalysis in General Examination Compared with Blood Chemistry. W. A. Cowell, Olean, N. Y.—p. 34.
Diagnosis of Surgical Diseases of Urinary Organs. J. U. Reaves, Mobile, Ala—p. 36.
Problem of Forcing Fluids for Infections of Urinary Tract. C. E. Haines, New Rochelle, N. Y.—p. 38.
Therapeutic Relationship of Digitalis and Strophanthus. E. E. Cornwall, Brooklyn.—p. 39.

Philippine Journal of Science, Manila

27: 1-160 (May) 1925

*Viability of Bacillus Dysenteriae. H. Kusama.—p. 1.
*Epidemiologic Study in Leprosy. G. R. Callender and T. Bitterman.—p. 9.
New Species of Philippine Plants Collected by A. Loher. E. D. Merrill.—p. 21.
Magellania Dickersoni, New Species of Branchiopod. I. Hayasaka.—p. 61.
Little Known Tipulide from Philippines (Diptera). C. P. Alexander.—p. 71.
Second Lot of Parasitic Hymenoptera from the Philippines. A. B. Gahan.—p. 83.
Bumblebees of Philippine Islands. T. H. Frison.—p. 113.
Two New Cassidas from Philippines. V. F. Spaeth.—p. 125.

Viability of Dysentery Bacillus.—Kusama says that unlike the vibrio of cholera, *B. dysenteriae* is fairly resistant to drying. It will survive longer in a sterile than in a normal fresh stool. *Bacillus dysenteriae* will survive a considerable length of time in water. In salt solution, and consequently in sea water, it will survive longer than in tap or distilled water. Physiologic sodium chlorid solution and bile are favorable mediums for the survival of *B. dysenteriae* in the stool, and the combination of the two may help to preserve *B. dysenteriae* in the stools of dysentery patients and carriers, in at least a certain percentage of cases.

Epidemiologic Study of Leprosy.—A study was made by Callender and Bitterman of some of the epidemiologic aspects of the histories of 259 lepers. Additional evidence is presented that the earliest recognizable lesion is in the anesthetic area. These data on the location of the primary lesion, added to the data reported by others, favor the theory that the organism enters the body through abrasions or similar wounds in the integument of the exposed parts of the body. The age at which the first symptom appeared in the cases of this series also agrees with the findings of others, that the more susceptible ages are in the first decades, although no age appears exempt.

Radiology, St. Paul

4: 445-536 (June) 1925

Pyelographic and Roentgenologic Diagnosis of Renal Tumors. W. F. Braasch and R. D. Carman, Rochester, Minn.—p. 445.
Thyroid Disease. E. L. Jenkinson, Chicago.—p. 453.
Surgical Aspect of Thyrotoxicosis. E. P. Richardson, Boston.—p. 458.
Results of Surgical and Roentgen-Ray Treatment of Exophthalmic Goiter. A. C. Christie, Washington, D. C.—p. 464.
Roentgen Ray Treatment of Thyrotoxicosis. R. G. Allison, Minneapolis.—p. 470.
Radium Treatment of Thyrotoxicosis. R. E. Loucks, Detroit.—p. 473.
Heredosyphilitic Cranial Osteoporosis. K. A. Menninger, Topeka, Kan.—p. 480.
Radioactive Substances and Their Therapeutic Uses and Applications. J. Muir, New York.—p. 492.
Portable Apparatus for Measuring Roentgen Rays. R. Kegerreis, Ann Arbor, Mich.—p. 497.
Projection Electroscope for Quantitative and Qualitative Roentgen-Ray Measurements. H. N. Beets, Chicago.—p. 500.
Oil Immersed Coolidge Tubes at 200 K. V. S. Withers, Denver.—p. 502.
Physiological Dominance and Biological Effects of Rays. W. T. Bovie, Cambridge, Mass.—p. 510.

Wisconsin Medical Journal, Milwaukee

24: 1-56 (June) 1925

Epidermophytosis. C. J. White and A. M. Greenwood, Boston.—p. 1.
Functions of Skin and Their Importance in General Medicine. E. F. Mueller, New York.—p. 10.
Psychology of Industrial Surgery. H. W. Powers, Milwaukee.—p. 17.
Industrial Surgery. R. Kaysen, Milwaukee.—p. 21.
Industrial Surgeon. E. W. Miller, Milwaukee.—p. 25.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Pickett-Thomson Research Laboratory, London

1: 217-294 (June) 1925

Preparation of High-Class Nutrient Medium for Cultivation of Germs Difficult to Grow. D. Thomson and R. Thomson—p. 217.
*Bacterium Pneumosintes. D. Thomson and R. Thomson.—p. 229.
*Bacteriology of Respiratory Tract in Influenza, Measles, Etc. Six New Species of Organisms. D. Thomson.—p. 253.
Classification and Identification of Germs by Microphotography. D. Thomson and R. Thomson.—p. 263.
Mechanical Disintegration of Germs and Other Protein Substances Such as Tissues. D. Thomson.—p. 275.

Bacterium Pneumosintes Detoxicated Vaccine.—During the past six months the Thomsons have grown sufficient amounts of *B. pneumosintes* to make large quantities of a toxic vaccine, and they hope to be able to collect shortly sufficient quantities of this germ to enable them to prepare a considerable quantity of a detoxicated vaccine of this organism. The germ is extremely soluble in alkali. It is more soluble than the gonococcus, and it can therefore be detoxicated very easily. The authors have ascertained that in the detoxication of this germ the alkali used need not be stronger than hundredth or two hundredth normal sodium hydrate and the antigenic properties of the vaccine should not be affected thereby. With regard to the toxic *B. pneumosintes* vaccine, the Thomsons carried out some preliminary experiments on themselves. From these experiments it would appear that a suitable dose of the toxic vaccine for prophylaxis should be about 25 millions. Owing to its extreme toxicity they believe that detoxicated vaccines of this organism are much to be desired, and they should be very satisfactory owing to the fact that extremely weak alkali need only be used in the process of preparation.

Bacteriology of Respiratory Tract.—An organism resembling *B. pneumosintes* was isolated by Thomson from a case of engadine fever, and two new organisms were isolated from the sputum of influenza cases occurring in London, a gram-negative anaerobic diplococcus (gas producer) and a gram-negative anaerobic diplococcus (nongas producer). From an early acute case of measles he isolated a gram-negative pleomorphic bacillus, a gram-negative oval diplococcus and a thin gram-negative anaerobic bacillus. He recovered a new gram-negative bacillus resembling a vibrio from his own sputum.

British Journal of Ophthalmology, London

9: 321-384 (July) 1925

Phacoerisis; 115 Cases. M. M. Cruickshank.—p. 321.
Edward the Confessor's Physician. R. R. James.—p. 351.

British Medical Journal, London

1: 1159-1202 (June 27) 1925

*Certain Phases of Leukocyte Activity. C. J. Bond.—p. 1162.
*Estimation of Cardiac Output as Measure of Its Efficiency. T. S. Wilson.—p. 1167.
*Urinary Infections with B. Coli and Pyogenic Cocci; Treatment with Collargol. H. H. Sanguinetti.—p. 1168.
*Clinical Study of Rheumatoid Arthritis. A. H. Douthwaite.—p. 1170.
*Significance of Hemorrhage in Chronic Uterine Sepsis. R. Hobbs.—p. 1172.
Poisoning by Eucalyptus Oil. P. C. Garrett.—p. 1172.
*Rupture of Abdominal Aneurysm Simulating Acute Intestinal Obstruction. H. Jaffé.—p. 1173.

Leukocyte Activity.—In 1919 Bond showed that when washed red cells are ground up, a drop of the suspension of the washed and sedimented débris, when incubated (in a closed cell) with two or three drops of the freshly drawn blood from the same individual, exercises a leukotoxic effect on the native leukocytes, varying in intensity according to the degree of concentration of the red cell débris in the incubated blood. The leukocytes emigrate very sparsely from the incubated clot, and those cells which adhere to the slide show marked signs of arrested activity, and cytolysis. In diseases like malaria and hemoglobinuria, in which a mass destruction of red cells occurs periodically, leukotoxic substances are present in the blood serum during the acute phases of the disease.

In pneumonia, in the acute febrile stage, the carpet of leukocytes which covers the floor of the cell in which the blood is incubated is a thick one, the cells are very active, and a large quantity of iodophil substance is liberated. These and other facts suggest that it is some change on the surface of the red cell which brings about the altered attitude on the part of the leukocytes. Comparative observation on serum from the general and the splenic circulation confirms the statement that substances which are capable of stimulating the aggressive activity of leukocytes toward red cells are present in the blood in situations and in organs where, normally, red cells are undergoing disintegration. The observations here recorded by Bond are concerned with the chemical and physical changes which can be observed in leukocytes as the result of, or in association with, the so-called process of stimulation. Briefly, iodophil droplets are extended from these cells. The property of elaborating iodophil substances is not confined to leukocytes. It is present in certain epithelial cells, both in the skin and in mucous membranes, especially those lining the orifices of the mucous canals, also in some marrow cells, in the giant myeloid cells in sarcomata of bony tissues, and in some cancer cells of epithelial origin. In the light of the observations now recorded it seems probable that this iodophil substance is not glycogen, as was originally thought, but (as shown by the reactions given with platinum salts) that it consists partly at least of lecithin in the water-soluble form, together with cholin split off from the lecithin. Further, it seems probable that the lecithin component is derived from the partial solution of the perinuclear lipoid membrane during cell activity, and that cell recovery depends on the lecithin content of the cell, and may be associated with the restitution of this perinuclear lecithin membrane.

Estimation of Cardiac Output.—On comparing the information gained by observation of the size of the lungs, of the physical condition of the liver as judged by percussion, together with the size of the area of cardiac dulness and the results given by the sphygmomanometer, Wilson says, a very trustworthy and exact estimate can be formed as to the cardiac output, and the recognition of myocardial weakness will be made more easily, whether toxic in nature or due to atheroma of the coronary arteries. It may be lessened by the compensatory diminution in the total volume of blood in circulation which occurs (apart from cardiac weakness) in starvation and certain other pathologic conditions.

Treatment of Urinary Infections.—Sanguinetti concludes that whether the infection ascends or descends, infection of the bladder alone is a very frequent condition in chronic cases, and that even if the acute cases start in the renal pelvis, the infection there soon disappears, while that in the bladder persists. Hence bladder injections are indicated in these cases. Sanguinetti reports good results from the use of such injections.

Treatment of Rheumatoid Arthritis. — The treatment employed by Douthwaite in these cases consisted of: (1) Immobilization of joints in the acute stage, if possible by extension splints. (2) Eradication of septic foci. (3) Immunization by means of an autogenous vaccine. (4) Massage and passive movements. (5) Autoserotherapy.

Hemorrhage from Puerperal Uterus.—If the lochia are still red by about the seventh to the tenth day, Hobbs regards this as a sign of secondary hemorrhage from the uterus. He has found that glycerin is the best drug in stimulating the uterus to contract, and stops hemorrhage far better than any form of intra-uterine manipulation or medication.

Rupture of Abdominal Aneurysm.—In the case cited by Jaffe, there was a rupture of three fingerbreadths in the right lateral wall of a fusiform aneurysm of the abdominal aorta. This aneurysm, the size of a man's fist, extended from a point one-half inch below the level of the origin of the renal arteries to a point just above the bifurcation of the aorta; the walls of the aneurysm, common iliac arteries, and the portion of the aorta proximal to the aneurysm were markedly atheromatous. The right kidney was polycystic, but no other macroscopic changes were noted in the abdominal organs.

Edinburgh Medical Journal

32: 325-388 (July) 1925

*Spontaneous Arteriovenous Aneurysm in Thorax. T. Shennan.—p. 325.
Bones in Congenital Proximal Radio-Ulnar Synostosis. D. M. Greig.—p. 354.
Cases of Congenital Cardiac Defect in Children. A. R. MacGregor.—p. 370. Cont'd.

Spontaneous Arteriovenous Aneurysm in Thorax.—Shennan cites two cases, one of perforation of an aneurysm of the aorta into the superior vena cava with syphilitic aortitis, and one of perforation of the extension of an aneurysm of the aorta into the upper part of the right auricle with syphilitic aortitis. The aneurysm in this case partly obliterated the lower part of the superior vena cava, leaving two narrow channels, anterior and posterior, the rupture occurring into the right auricle just below the caval opening; the case, clinically, resembling those in which the perforation was higher up. Shennan also reviews sixty reported cases of perforation into the innominate vein or superior vena cava.

Journal of Laryngology and Otology, Edinburgh

60: 357-424 (June) 1925

Septicemia and Acute Infections of Middle Ear Tract. G. J. Jenkins.—p. 357.
Is Localization of Sound a Function of Membrana Tympani and Ossicles? J. A. Keen.—p. 363.
Infective Scleroma of Respiratory Passages. F. Lasagna.—p. 369.
Variations in Time Required to Induce Anesthesia by Surface Application of Cocain Hydrochlorid Solution in Varying Concentration. E. Watson-Williams.—p. 374.
Case of "Malignant Granuloma of Nose." G. A. D. M'Arthur.—p. 378.

40: 425-492 (July) 1925

Function of Vestibular Organ; Clinical Examination of Otolithic Apparatus. F. H. Quix.—p. 425.
How Does Caloric Nystagmus Arise? S. H. Mygind.—p. 444.
Intracranial Infection by Erosion from Subperiosteal Abscess. T. R. Rodger.—p. 451.
*Tuberculous Disease of Middle Ear. H. W. D. M'Cart.—p. 456.
Otogenous Brain Abscess—Right Temporal Lobe. A. R. Tweedie.—p. 467.
Elongated Styloid Processes; Case. A. Evans.—p. 469.

Tuberculous Disease of Middle Ear.—There appear to be two groups of cases of tuberculous otitis media: (*a*) Tuberculous otitis media in children under 15 years of age, and (*b*) tuberculous otitis media in adults. In seven of the nine cases cited by McCart, pulmonary phthisis was taken as the primary focus. In 4,060 cases of chronic middle ear suppuration (of all ages), 845 radical mastoid operations were performed. Of these, thirty-one (4 per cent.) were tuberculous cases. Practically 100 per cent. of children under 2 years of age, undergoing the radical mastoid operation, were suffering from tuberculous otitis media.

Journal of Oriental Medicine, Dairen, China

3: 1-52 (March) 1925

Pharmacodynamics of Pseudoephedrins and Ephedrins. M. Fujii.—p. 1.
Porokeratosis Vera. S. Hidaka.—p. 27.
Kerato-angioma Punctatum Symmetricum. S. Hidaka.—p. 30.
Action of Insulin. K. Okashima and J. Ohkuni.—p. 32.
Naevus Epitheliomatosus Sebaceus. S. Hidaka.—p. 44.
Types and Toxicities of Bacilli of Child Dysentery in Manchuria. N. Hoshi.—p. 45.
Pyelography. H. Yanagihara and T. Miyata.—p. 46.
Calcium Content of Liver and Skeletal Muscles in Avitaminosis. Y. Jono.—p. 47.
State of Adiposity in Avitaminosis. Y. Jono.—p. 48.

Lancet, London

2: 1-52 (July 4) 1925

Disorders of Motility and of Muscle Tone; Corpus Striatum. S. A. Kinnier Wilson.—p. 1.
*Organization and Work of Light Department in Hospital for Surgical Tuberculosis. H. Gauvain.—p. 10.
*Wagner-Jauregg Treatment of Dementia Paralytica. S. Grossman.—p. 16.
Milk-Borne Epidemics. F. W. C. Brown.—p. 18.
Strangulated Obturator Hernia, Laparotomy: Recovery. W. Tyson.—p. 20.
Case of Thrombo-Angiitis Obliterans of Twenty-Two Years' Duration. D. P. Weber.—p. 21.

Light Therapy of Tuberculosis.—Gauvain regards light as being valuable in the treatment of surgical tuberculosis, and without it much that is now being accomplished at Alton

could not be done at all, while much more is very definitely aided. Certain cases derive greater benefit from artificial light than from sunlight, and vice versa.

Malaria Treatment of Dementia Paralytica.—Grossman feels that the treatment of general paralysis with benign tertian malaria is justified; the technic is simple; the fever can be controlled easily and quickly by quinin. No malaria relapses have occurred in his experience.

Tubercle, London

6: 473-520 (July) 1925

Use of Roentgen Rays in Diagnosis of Pulmonary Tuberculosis. J. E. A. Lynham.—p. 473.
*Herpes Zoster and Tuberculosis. S. Magnusson.—p. 482.
Genito-Urinary Tuberculosis. T. E. Hammond.—p. 490.

Herpes Zoster and Tuberculosis.—Magnusson reports one case of herpes zoster of the palate and tongue, with facial paralysis, and ten cases of herpes zoster which occurred among a total of about 1,500 patients suffering from pulmonary tuberculosis. In the first case eruption of herpes and the development of facial paralysis followed tuberculin treatment so closely that they were evidently provoked by it, being probably the expression of a tuberculotoxic inflammation of the cranial nerve ganglia. In the second case, the herpes, which involved the thoracic nerves (thoracic ganglia), seemed to be provoked by tuberculin (bacillary emulsion), though the relationship was not so definite as in the first case. In seven cases the herpes appeared in the zones the reflex connections of which corresponded to the lung or pleura most affected. In two cases the herpes appeared in the zones which may be supposed to correspond to the diseased intestines (intestinal tuberculosis). The herpes developed in both benign and severe cases, and it would, therefore, seem to be of no prognostic importance.

Archives de Médecine des Enfants, Paris

28: 337-400 (June) 1925

Pathogenesis of Acute Infections of Respiratory Tract. K. Lewkowicz. —p. 337.
Nonspecific Protein Therapy in Children. Pignero.—p. 364.
Mange from Cat in Child of 10. R. Labbé.—p. 370.
Protein Therapy in Children. J. Comby.—p. 374.

Bulletin de l'Académie de Médecine, Paris

93: 631-670 (June 9) 1925

*Sea and Sun Therapy in Rickets. L. Jaubert.—p. 657.
Tubercle Bacilli in Pharynx of Infants with Positive Skin Reaction. Lesné and Langle.—p. 660.
*Treatment of General Paralysis. A. Marie and V. Kohen.—p. 664.

Sea and Sunlight Treatment in Rickets.—Jaubert summarizes the results of this treatment, applied in the course of seven years to 210 children, aged from 2 to 4. Of the 42 per cent. affected with a severe form of rickets, sixty-eight children were unable to walk. Most of them started to walk after two or two and a half months' treatment; others after seven or eight months. About 53 per cent. had a moderate form of the disease, and about 5 per cent., a mild form. The treatment, corresponding to the form, lasted from three to twelve months. Sun baths, mostly on the beach, were given every day, if the air temperature was not below 30 C. In the winter, the sun baths were given from 10 to 12 for two hours. In the summer, the baths were given from 6 to 7 a. m., the exposure to the sun lasting only one hour. Besides, the children were given hot seawater baths. About 200 children were cured or considerably improved.

Fever-Inducing Treatment of General Paralysis.—Three years' observation has convinced Marie and Kohen that milk and nucleinate injections should first be tried in fever-inducing treatment. If the results are negative, in patients not affected with tuberculosis, injections of tuberculin at gradually increasing doses (beginning with 0.0005 gm.) should be used, alternating with bismuth. In certain patients a fever of 39 C. may be induced with less than 0.5 mg. of tuberculin, while advanced general paralysis may not respond even to 2 or 3 gm. If this method fails, then only should the malaria treatment be applied in young patients without kidney, heart or liver affection. The resulting improvement will be maintained by two or three series of bismuth injections yearly.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 789-847 (May 29) 1925

Rickets and Light. Marfan.—p. 791.
*Induced Bilateral Pneumothorax. E. Coulaud.—p. 792.
*Treatment of General Paralysis. Claude and Targowla.—p. 795.
Acute Poliomyelitis with Paraplegia. Laignel-Lavastine.—p. 806.
*Herpes and Varicelloid Eruption. Troisier and Delalande.—p. 808.
Case of Uremic Nephritis. P. Merklen et al.—p. 812.
Postencephalitic Parkinsonian Syndromes. Renaud and Auger.—p. 820.
Eruption with Bubonic Plague. P. Teissier et al.—p. 824.
Anaphylactic Shock from Insulin. Raynaud and Lacroix.—p. 831.
*Neuritis of the Circumflex in Diabetes. Sergent and Kaufmann.—p. 840.
*Meningeal Reaction in Diphtheria. Babonneix and Pollet.—p. 842.
Enterococcus Septicemia. Brelet.—p. 844.

Efficacy of Bilateral Artificial Pneumothorax.—In the case observed by Coulaud, in a young woman, the collapse of each lung was as complete and efficient as in a unilateral induced pneumothorax. The treatment succeeded in arresting the development of the tuberculous process. There was no dyspnea with the minus 2 pressure on each side.

Results from Malaria Treatment of General Paralysis.—Claude and Targowla describe two cases in women, aged 35 and 54, among thirty thus treated. They emphasize that the mental condition particularly and certain organic lesions were improved, but persistent reactions in the cerebrospinal fluid showed that the process in the brain and meninges was not checked.

Herpes Zoster Coexisting with Eruption Resembling Chickenpox.—In the case reported by Troisier and Delalande a generalized varicella-like eruption followed twenty-four hours after the appearance of the herpes. They believe that the simultaneous development of the two affections in another patient testifies to their different origin.

Neuritis of the Circumflex in Diagnosis of Diabetes.—Sergent and Kaufmann call attention to the frequent inflammation of the circumflex nerve in diabetes, revealed by motor disturbances in the deltoid muscle. The neuritis, analogous to sciatica in diabetics, is probably of toxic origin. The phenomenon may be helpful in diagnosis of latent diabetes.

Cerebrospinal Fluid Test in Diphtheric Paralysis.—Lumbar puncture made over two months after the appearance of a generalized paralysis showed an inflammatory hyperalbuminosis and lymphocytosis; the two phenomena are usually dissociated. Evidently the meningeal reaction depends on the location of the lesions, which may or may not affect the pia mater.

49: 849-884 (June 5) 1925

Asthenia and Syphilis. P. Merklen and A. Devaux.—p. 849.
Light and Rickets. P. F. Armand-Delille.—p. 852.
*The Soil in Immunity to Diphtheria. C. Zoeller.—p. 853.
*Course of Postencephalitic Parkinsonism. P. Harvier.—p. 858.
Rupture of Biceps from Gymnastics. Thiel and Minot.—p. 859.
Pituitary Treatment in Diabetes. M. Labbé and L. Denoyelle.—p. 860.
Salicylate Treatment in Meningitis Insipidus. P. Pagniez et al.—p. 865.
*Pneumothorax and Pregnancy. A. Pellé.—p. 867.
Case of Bronchopleural Perforation. R. Burnand.—p. 871.
Arteritis Obliterans in Lower Limbs. Emile-Weil and Lévy-Franckel. —p. 879.
Polioencephalomyelitis of Syphilitic Origin. Fribourg-Blanc and Jausion. —p. 880.

Rôle of the Soil in Immunity Against Diphtheria.—Zoeller emphasizes the rôle of the soil, the natural reactivity, in immunization by diphtheria anatoxin. The positive Schick reaction became negative after one injection in seven out of nineteen persons vaccinated, in four after two injections, in eight after three. Inoculation or an occult contact with the specific microbe induce an acquired reactivity. Recurrent diphtheria ought to be borne in mind, and differentiated from the ordinary sore throat in diphtheria carriers. Analogous conditions are observed in persons repeatedly exposed to contact with diphtheria bacilli and nevertheless showing a positive Schick reaction. Natural reactivity may be a familial and hereditary property. He also points to hyperreceptivity, confirmed by the occurrence of diphtheria in a vaccinated subject. The vaccination results seem better in persons who had been previously in contact with diphtheria bacilli. Therefore efficient preventive vaccination during epidemics results from an associated action of vaccine and occult infection.

Character of Parkinsonian Syndrome from Encephalitis.—Inoculation of an animal with some midbrain tissue obtained in necropsy on a subject, affected with postencephalitic parkinsonism for over three years, acted on the animal as an active and pathogenic virus. Harvier considers this a proof that postencephalitic parkinsonism is not a sequel, but a progressing disease.

Pneumothorax and Motherhood.—Pellé observed four cases of normal pregnancy in tuberculous women treated by artificial pneumothorax. Only in one instance did abortion occur, in the fifth month of pregnancy. No aggravation of the tuberculous process was noted during or after pregnancy. The suppressed functioning of the lung did not affect the pregnancy, labor or delivery. The infants were normal and healthy. The good condition of the women still persists from three to twelve months after childbirth. Childbirth may be without danger to women treated by pneumothorax.

Comptes Rendus de la Société de Biologie, Paris

92: 1341-1408 (May 22) 1925. Partial Index

*Immunity from Killed Vaccine Virus. M. Belin.—p. 1344.
Conservation of Tubercle Bacillus. F. de Potter.—p. 1346.
"Chemo-Vaccine Therapy." G. D. Belonovsky.—p. 1354.
*Insulin in Diabetic Retinitis. Chauffard et al.—p. 1356.
*Experimental Edema. M. Labbé et al.—p. 1359.
Ammonia and the Acidity of the Urine. R. Rafflin.—p. 1361.
*Heating and Metabolism. Delcourt-Bernard and Mayer.—p. 1364.
*Pathogenesis of Mumps. Y. Kermorgant.—p. 1370.
*Measuring the Sputum. E. Leuret et al.—p. 1375.
*The "Pressiophone." F. H. Harlé.—p. 1377.
*Tendon Reflexes. V. Pachon and C. Petiteau.—p. 1380.
*Dosage of Blood Oxygen. M. Nicloux and J. Roche.—p. 1393.
Mechanism of Muscular Contraction. A. Schwartz.—p. 1396.
*Roentgen Ray and Age. Ancel and Vintemberger.—p. 1401.
P. Vintemberger.—p. 1401.
*No Ammonia in Arterial Blood. G. Fontès and A. Yovanovitch.—p. 1406.

Immunity from Killed Vaccine Virus.—Belin's experiments on guinea-pigs showed that pronounced immunity from inoculation with vaccine virus can be realized with virus killed by heating to 60 C., given by intradermal injection. Saprophyte bacteria did not seem to interfere with the process of immunization.

Insulin Treatment of Diabetic Retinitis.—Chauffard, Grigaut and Nida observed a case of Hirschberg's "central punctate retinitis," in a man, aged 68. The affection was connected with diabetes, but not associated with arterial hypertension, or renal insufficiency. Treatment with insulin resulted in immediate improvement. The fact is ascribed to the influence of insulin on metabolism of fats, since the white spots in the fundus oculi diminished simultaneously with the reduction of the fats in the blood. Evidently insulin acts not only on the blood lipoids, but also on the lipoids in the tissues.

Mechanism of Experimental Edema.—Labbé, Violle and Lelièvre treated in vitro the gastrocnemius muscle of a frog with plasma from subjects with edema. This entailed infiltration of the intermuscular connective tissue, and a subsequent veritable edema. They conclude, contrary to Fischer's theory, that effusion of liquid into intercellular spaces occurs without preliminary swelling of cells.

Influence of Heat on Metabolism.—Forty tests made by Delcourt-Bernard and Mayer demonstrated that brief exposure to slight heat does not usually induce immediate changes in the respiratory metabolism. In rare cases the exposure may decrease oxidation, while short exposure to cold may, in certain subjects, exaggerate the oxidations.

Rôle of Spirochete in Etiology of Mumps.—Kermorgant made his research with secretions taken from the mouth and pharynx of patients in the first stage of the disease. Injection of 0.1 c.c. of concentrated virus (by centrifuge) into one parotid gland caused in three monkeys a bilateral parotitis, and in the fourth multiple localizations of the infection (affection of submaxillary and lacrimal glands, meningeal reaction). A spirochete was always present in the secretion used for inoculation, and in the glands of animals thus injected. Bacteriological investigation showed that filtrable forms of the spirochete are identical with Wollstein's filtrable mumps virus.

Technic for Measuring Sputum Volume.—Leuret, Lamothe and Lozach detail the procedure consisting in mixing sodium metaphosphate with hydrochloric acid in order to obtain metaphosphoric acid, a reagent for all the proteins in the sputum. The method, they say, is easy and exact.

Apparatus for Auscultation of Arterial Pressure.—Harlé describes his apparatus, composed of stethoscope and manometer. He calls it the "Pressiophone."

Location of Sensibility Causing Tendon Reflexes.—Pachon and Petiteau's investigation in dogs indicated that sensibility to tension, controlling tendon reflexes, is located in the aponeuroses and tendons, and not in muscular fibers.

Technic for Determination of Blood Oxygen.—Nicloux and Roche demonstrate their method and the simple apparatus. They affirm that the accuracy of the findings is quite satisfactory.

Effect of Roentgen Ray and Age on Hen's Eggs.—Ancel and Vintemberger noted that cellular changes, provoked in a hen's egg by roentgen rays, are identical with those from senescence. The first acts rapidly, the second slowly.

Probable Absence of Ammonia in Arterial Blood.—Fontès and Yovanovitch found no ammonia in the fresh arterial blood of a dog. Consequently, they say, urea is not formed of ammonium salts. The origin of urinary ammonium seems to be in the kidney.

Journal de Chirurgie, Paris

25: 513-632 (May) 1925

*Treatment in Duodenal Ulcer. M. B. Schiassi.—p. 513.
*Acute Hip Joint Disease. Curtillet and Tillier.—p. 524.

Treatment of Duodenal Ulcer.—Schiassi aims to deprive the duodenum of its sympathetic innervation by cutting the six sympathetic fibers and the parasympathetic on the pylorus region, and making a long incision below to reach the rear through the omentum. In eight cases the resection of the nerves was all that was necessary; in fifteen he supplemented this with a gastro-enterostomy. The outcome has confirmed, he says, that this is the best and most effectual treatment for duodenal ulcer.

Treatment of Acute Disease of Hip Joint.—Curtillet and Tillier extol the advantages of vertical, "zenith," extension of the leg, suspended from a frame. This insures perfect drainage; suppresses all pain in moving the patient or applying dressings; prevents soiling of the dressings, and danger of bed sores, and of pathologic luxation. There is no danger of ankylosis as the extension is not continued long enough.

Médecine, Paris

6: 573-662 (May) 1925

The Tuberculosis Problem. F. Bezançon.—p. 573.
Familial Tuberculosis. F. Bezançon and P. Braun.—p. 585.
Rest in Treatment of Tuberculosis. F. Bezançon and P. Braun.—p. 593.
Review of Mollgaard's Report. Bezançon and Caublot.—p. 610.
Stovarsol in Bacillary Enteritis and Diarrhea in Tuberculosis. L. Bernard et al.—p. 622.
Dysphagia in Tuberculous Laryngitis. Moulonguet.—p. 624.
Ultraviolet Rays in Prophylaxis and Treatment of Tuberculosis. M. P. Weil.—p. 628.
Cod Liver Oil in Tuberculosis. E. Etchégoin and A. Jacquelin.—p. 639.
Tincture of Garlic as Expectorant. Brodiez.—p. 652.

Paris Médical

55: 529-544 (June 13) 1925

Physiologic Effects from Light Rays. C. Sonne.—p. 529.
"Classification" of Multiple Exostoses. A. Leri and A. Linossier.—p. 535.

55: 545-572 (June 20) 1925

Gynecology in 1925. L. Houdard.—p. 545.
*Roentgenotherapy and Ovarian Cysts. J. L. Faure.—p. 551.
Case of Chorio-Epithelioma. De Rouville and Madon.—p. 553.
*Course of Uterine Polyps. R. Princeteau.—p. 555.
Obstetrics in 1925. J. Coll de Carrera.—p. 556.
Therapeutic Abortion. A. Fruhinsholz.—p. 561.
*Arsenical Treatment of Puerperal Infection. M. Rivière.—p. 564.
*Vaccine-Serotherapy in Puerperal Septicemia. Levy-Solal and Leloup.—p. 568.

Danger from Roentgen Rays in Cases of Ovarian Cysts.—Faure observed several cases of ovarian cysts, diagnosed as uterine fibroma, which underwent malignant degeneration after exposure to roentgen rays. He emphasizes that roentgen treatment should be applied only when a cyst is absolutely excluded.

Degeneration of Uterine Polyps into Cancer.—Referring to his two observations, Princeteau affirms that mucous and fibrous polyps may coexist with other affections of the uterus, or degenerate into cancer. Therefore exploratory curettage with microscopic examination is indispensable in cases of uterine polyps.

Arsenicals in Treatment of Puerperal Infection.—With the treatment used by Rivière during the last sixteen months, no death occurred in fifty-six cases of puerperal septicemia, while in the same time six fatalities occurred among thirty patients otherwise treated. In several instances fever subsided within three or four days, after one or two injections; in others from five to fourteen days. Sulpharsphenamin was given subcutaneously in the dose of 0.12 gm.; in certain cases five or six injections (at one day intervals) of 0.18 gm. were needed. Intravenous injections may be preferred in grave cases of septicemia. Six subcutaneous injections of 0.12 gm. of sulpharsphenamin (with daily intervals) proved successful also in a case of phlegmasia alba dolens.

Specific Vaccine and Serum in Treatment of Puerperal Septicemia.—Levy-Solal and Leloup use an iodized vaccine, prepared with highly virulent cultures of streptococci from puerperal septicemia, in prophylaxis and in mild puerperal septicemia. In four severe cases injections of blood from vaccinated subjects were given. From one to eight injections of 20-50 c.c. of blood resulted in recovery of the patients. Transfusion of blood from a vaccinated subject was effectual in their fifth case of septicemia, accompanied by anemia. The injections were made intramuscularly in the thigh. The husband was vaccinated for the purpose in two cases.

Presse Médicale, Paris

33: 761-784 (June 10) 1925

Fate of Vein After Obliteration. L. Binet and J. Verne.—p. 761.
Vernes and Wassermann Tests in Syphilis. A. Bergeron.—p. 762.
Oculocardiac Reflex in Respiratory Affections. J. Galup.—p. 765.
Acid-Base Balance. F. Coste.—p. 768.

33: 785-800 (June 13) 1925

*Physiology of Ovary. P. Bouin.—p. 785.
Cellular Permeability. H. Iscovesco.—p. 788.

Physiology of Ovary Outside of Pregnancy.—Analyzing recent work, Bouin concludes that the ovarian functioning is quite different in the follicle stage and in the ovum stage, since the hormones secreted by the two act successively, and in a different way. Therefore, it should be clinically established, whether insufficiency of the ovary is caused by a deranged functioning of the follicle or of the ovum.

33: 801-824 (June 17) 1925

*Etiology of Rickets. L. Blum, et al.—p. 801.
*Roentgen-Ray Treatment in Poliomyelitis. H. Bordier.—p. 802.
Drainage with Appendectomy. R. Bonneau.—p. 804.
*Posttyphoid Aortitis. C. Vasilesco-Popesco and G. Litarczek.—p. 806.
*Operation on Typhoid Perforations. Tasso-Asteriadès.—p. 808.
Acid-Base Balance. Cont'd. F. Coste.—p. 810.

Acidosis in Pathogenesis of Rickets.—Blum, Delaville and Van Caulaert reiterate that decrease of mineral matter in bone plays a secondary rôle in the bone lesions of rickets. The essential factor is the modification of the colloid reaction from acidosis. The latter may present excess of organic acids, as in diabetic acidosis, or a disturbed sodium-chlorin balance similar to that present in osteomalacia. Further research may show whether the acidosis is caused by faulty nourishment (fasting prevents or checks rickets) or by a deficient functioning of the liver and endocrine glands. Determination of acidosis may assist in clarifying a dubious diagnosis, as well as in prognosis. It shows also the effect of treatment. Calcium chlorid is contraindicated since it produces acidosis. The author's recent research showed that ultraviolet rays decrease acidosis and favor ossification. Sodium bicarbonate, mixed with potassium bicarbonate and calcium bicarbonate, may be tried to overcome the acidosis.

Roentgen Ray and Diathermy in Treatment of Poliomyelitis.—Within the last ten months Bordier treated five patients with the degeneration reaction present in the paralyzed muscles. Roentgen rays were combined with diathermy, if the limb was cool. The treatment started from fifteen to thirty days after defervescence; it resulted in an almost complete recovery of the patients. (Details of the treatment were given in a previous article, summarized June 20, 1925, p. 1965.)

Typhoid Septicemia Complicated by Ulcerous Aortitis.—Vasilesco-Popesco and Litarczek describe such a case occurring in a man, aged 48. A persistent septic condition (sixteen months) following typhoid fever, entailed an ulcerous aortitis with subsequent formation of aneurysm and rupture of the aneurysm afterward.

Operation for Posttyphoid Intestinal Perforations.—Operation done from one to six hours after perforation was followed by recovery of four patients. Ileocolostomy, resection or exteriorization of the perforated intestine, and incision of abscess were applied once. Laparatomy did not save the life of the fifth patient, who had general peritonitis. Ether or other preparations were used to disinfect the peritoneum.

Revue Médicale de la Suisse Romande, Geneva

45: 385-456 (June 15) 1925

Urinary Tract Infections in Infants and Children. M. Jaccottet.—p. 385.
Pain in Traumatism of Nape of Neck and Spinal Cord. F. Naville.—p. 418.
Unusual Localization of Tuberculosis. E. Thomas.—p. 425.
Progress in Auscultation in Tuberculosis. Burnand.—p. 431.

Schweizerische medizinische Wochenschrift, Basel

55: 469-528 (May 28) 1925. Surgical Congress Number (1924)

*Treatment of Furuncles on the Face. C. A. Perret.—p. 469.
Surgical Interventions on the Extremities. Steinmann.—p. 470.
*Premature Ossification of the Epiphyses. W. Odermatt.—p. 474.
*Surgery of Open Injuries of Brain Ventricles. Baumann.—p. 478.
*Air Embolism After Operations on the Chest. T. Naegeli.—p. 479.
*Regeneration Phenomena in Stomach Wall. T. Naegeli.—p. 481.
Pseudocholelithiasis and Blood Diseases. E. Bircher.—p. 482.
Age for Surgery of Cleft Palate. Hagenbach.—p. 487.
Bécart's Transfusion Syringe. H. C. Krafft.—p. 488.
Basal Metabolism in Goiter Patients. F. Merke.—p. 488.
Osteochondritis Dissecans of Elbow. A. Schirmer.—p. 489.
Screws for Subcapital Fracture of Neck of Femur. Hotz.—p. 490.
Anatomy of Vessels of Costal Cartilages C. Henschen.—p. 491.
Thrombosis and Embolism. K. Helly.—p. 492.
*Postoperative Thrombosis and Embolism. F. de Quervain.—p. 497.
Idem. Meyer-Rüegg.—p. 505.
Surgery of Inflamed Varicose Veins. H. C. Krafft.—p. 513.
*Treatment of Postoperative Thrombophlebitis in Leg. Julliard.—p. 515.
Prevention of Thrombosis. L. Gelpke.—p. 518.
Postoperative Blood Changes. Heusser.—p. 518.
Thrombosis and Embolism. T. Naegeli.—p. 520.
Roentgen Treatment of Cancer of Breast. G. Hotz.—p. 521.

Treatment of Furuncles on the Face.—Perret applies repeatedly on the furuncle one drop of phenol under slight pressure until it corrodes its way into the accumulation of pus.

Premature Ossification of the Epiphyses. — Odermatt describes a case of premature development, especially of the genitals, in a 4 year old boy.

Surgery of Open Injuries of Brain Ventricles.—Baumann's patient, a boy 10 years of age, is probably the first patient who ever recovered from tampon treatment of an open wound of a brain ventricle.

Air Embolism After Operations on the Chest.—Naegeli attributes to arterial air embolism the "reflex" convulsions and death observed after intrathoracic interventions. Bleeding indicates injury of a vessel and contraindicates continuation of the operation. Stimulation of the heart and inhalation of oxygen are advisable. Artificial respiration is contraindicated.

Regeneration Phenomena in Stomach Wall. — Naegeli excised an oval piece of the stomach wall in dogs and reimplanted it. All of the dogs survived. Adhesions of the omentum formed and the wound healed with a defect. Circular excisions were fatal.

Postoperative Thrombosis and Embolism.—Quervain publishes his statistics on postoperative embolism. Interventions on the prostate gave the highest percentage of this mishap (4.2 per cent. in 356 patients). Absolutely certain prevention has not been realized. Thrombosis of the saphenous vein is not very dangerous. He consented once to a herniotomy in a woman only on condition of preventive simultaneous resection

of both varicose saphenous veins. The patient consented and died ten days after the operation from pulmonary embolism—perhaps just because of this attempt to prevent it.

Treatment of Postoperative Thrombophlebitis in Leg.—Julliard applies two or three leeches along the course of the femoral vein thrombosed and inflamed after an operation. He adds three new instances of success to the nineteen reported by Termier who proposed the treatment.

Prensa Médica Argentina, Buenos Aires

11: 1069-1100 (April 30) 1925

*Transient Cerebral Vasoconstriction. C. Lian and R. Barrieu.—p. 1069.
Clinical Study of Congenital Syphilis. J. L. Carrera.—p. 1078.
Uric Acid Output During Irradiation for Cancer. A. H. Roffo and H. de Giorgi.—p. 1089.

Transient Cerebral Symptoms in Hypertension.—Lian and Barrieu discuss what they call cerebral eclipses, the result of transient vascular spasm in the course of chronic hypertension. Actual hemiplegia for five minutes, transient amblyopia or amaurosis, aphasia, momentary loss of memory, are some of the forms of these eclipses. They call for amyl nitrite, or other vasodilating measures, but especially for strict dieting to reduce intake of proteins, water and salt. One or two days a month nothing but water should be allowed, with a purgative and small venesection, with digitalis alternating with theobromin in case the heart is weak. The prognosis of the eclipses themselves is favorable but they are a manifestation of the underlying tendency to vasoconstriction, the same as the hypertension itself.

11: 1101-1140 (May 10) 1925

*Sympathetic Origin of Vitiligo. M. R. Castex and A. F. Camauer.—p. 1101.
Sulphur Reaction in Cancer Urine. F. Kopatschek and J. Brinckmann.—p. 1108.
Recurring Eruption in Congenital Syphilis. R. O. Belgrano.—p. 1117.
*Autophoric Transplants. M. Fernandez.—p. 1118.
Action of Certain Metal Ions on Development of Tissues in Vitro. A. H. Roffo.—p. 1124.

Vitiligo as a Sympathetic Syndrome.—Among the arguments presented by Castex and Camauer to sustain the sympathetic origin of this dermatosis are its hereditary and symmetrical nature, its coexisting or alternating with other sympathetic disturbances (pruritus, fleeting edema, etc.) connection with emotional factors, and endocrine derangement and the frequent intestinal toxemia and history of syphilis and abuse of alcohol or tobacco.

Autophoric Transplants. — Fernandez summarizes the research at Vienna in the line of reimplantation of the eyes in vertebrates and of the heads of insects.

Revista de Medicina y Cirugía, Havana

30: 205-238 (April 10) 1925

*Early Detection of Leprosy. P. Ramos Baez.—p. 205.
The Indications for Forceps. J. M. Ramirez Olivella and J. Ortiz Pérez.—p. 219.
Bismuth in Treatment of the Eyes. J. Moron.—p. 227.

Early Diagnosis of Leprosy.—An eruption at the age of 7 was ascribed to a recurrence of measles, and pains in the joints at 12 and later were diagnosed as recurring acute febrile rheumatism. After marriage, symptoms of tuberculosis developed, with nodules in the skin from which the lepra bacillus was cultivated. The father had had a mild case of leprosy. He died from intercurrent disease when the patient was 7. The case confirms the contagiousness, the long latency, and the resemblance to tuberculosis in the early stages.

30: 239-267 (April 25) 1925

Fifty Years of Practice. Cabrera Saavedra.—p. 239.
Removal of Tuberculous Kidney at Age of 60. A. G. Casariego.—p. 257.
*Blindness from Arsenical Nitritoid Crisis. J. Ruiz Velasco.—p. 260.

Nitritoid Crisis with Grave Ocular Lesions.—Ruiz Velasco relates that an injection of neo-arsphenamin was given a young man to hasten the recovery of a corneal ulcer which had improved somewhat under two injections of milk. Four hours later a nitritoid crisis developed and in five days vision was reduced to bare perception of a strong light. The eyes were painful and glaucomatous. Degeneration is now evident; vision reduced to outlines.

Archiv für Gynäkologie, Berlin

124: 305-688 (June 3) 1925

Heterotopic Endometrial Hypertrophy of Epithelium in Female Genitals. E. Stübler and A. Haeuber.—p. 305.
*Dysmenorrhea of Mental Origin. W. Dick.—p. 345.
*Vaginal Leukorrhea. A. Landeker.—p. 367.
Hemophilia in Female Possible. H. W. Siemens.—p. 375.
Gynecologic Symptoms of Mental Origin. Walthard.—p. 381.
Vagina Dose in Radiotherapy. T. Brandt.—p. 449.
Metastatic Hystero-Adenosis. J. Halban.—p. 457.
*Lipoid Content in Ovary During Pregnancy. H. Eufinger and C. W. Bader.—p. 483.
*Chemical Changes in Placenta. E. Wehefritz.—p. 511.
*Turgidization of the Placenta. W. Koerting.—p. 525.
Physiology and Morphology of the Placenta. Richter.—p. 557.
*Protracted Pregnancy. R. Köhler.—p. 575.
*Residual Nitrogen in the Blood in Labor and Puerperium. O. Heesch.—p. 595.
*Roentgenstereoscopy of the Pelvis. Archangelski.—p. 606.
Closure of Mucosa Opening on Nidation of Human Ovum. Peters.—p. 625.
Ovarian Changes in Hydatidiform Mole. R. Schröder.—p. 654.
Ovarian Tumors. S. Kusuda.—p. 669.

Dysmenorrhea of Mental Origin and Treatment by Hypnosis.—Dick describes six cases successfully treated by this method. In one case kinked anteflexion, conical cervix and stenosis of the cervical canal suggested "mechanical" dysmenorrhea, yet complete and permanent recovery followed two applications of hypnosis. The Fliess intranasal method seems to him dependent on hypnosis. Atropin is often efficacious, probably from its specific action on the vagus. For most cases of dysmenorrhea he recommends psychotherapeutic measures applied by the gynecologist, who must have a thorough understanding of psychoneuroses and of the methods of psychanalysis, psychotherapy and therapeutic hypnosis.

Origin and Treatment of Vaginal Leukorrhea.—Landeker sprays ethyl chlorid into the vagina through the opaque glass speculum. By moving it back and forth the fluid is kept in contact with the entire vaginal canal one to two minutes, then the residue is sponged out, to protect the vulva. He considers the ethyl chlorid spray in the vagina as an ideal disinfectant. While the ethyl chlorid exerts its disinfecting power, there is also probably a simultaneous change in the metabolism of the affected tissue cells due to the pronounced stimulus from the cold.

Lipoid Content in Ovary and Atresia of Corpus Luteum in Pregnancy.—Eufinger and Bader state that the lipoid content of the corpus luteum gradually decreases during the pregnancy. Usually only traces are found in the graafian follicles in pregnancy. In the corpus luteum of pregnancy and in the follicles, esters of cholesterol and cholesterol-fatty acid mixtures predominate. In the puerperium the lipoid content rises rapidly. Unruptured corpora lutea from previous menstruations are regularly present till the middle of pregnancy or even to the end. Their abundant lipoid content consists of cholesterol-fatty acid mixtures, cholesterol-glycerol mixtures, and fatty acids and soaps. They conclude that these unruptured corpora lutea may be of greater functional importance than hitherto suspected.

Chemical Changes with Age in Human Placenta.—Wehefritz found that as the pregnancy progresses, the components of the protein molecule show changes in the content of solid substance. The lowest values appear in the youngest placentas. In the eighth month generally the regressive changes begin which lead to atrophy of the placenta from age. While the arginin decreases during pregnancy, the phosphorus and lipoid phosphorus increase. The rôle of these age changes in the induction of labor is difficult to determine.

Hydraulic Turgidization of the Placenta.—Koerting says that distending the placenta by injection of a fluid through the umbilical vein frequently makes the Credé expression and manual separation of the placenta unnecessary. The method is equally adaptable in general practice and in the clinic and should, he says, be taught in the obstetrics course. To obtain the full effect of the injection, expression should not precede it. Should the Credé intervention become necessary, the distention of the placenta improves conditions for it. With rupture of villi and consequent escape of the fluid the injection should not be repeated. With profuse hemorrhage and

when the amount lost by earlier hemorrhages is not known this hydraulic method of placenta expulsion is contraindicated.

Induction of Labor in Protracted Pregnancy.—Köhler investigated 10,000 obstetrical cases and concludes that every case of pregnancy protracted beyond the calculated date of confinement calls for close observation of the relation between the size of the fetal head and the mother's pelvis, with particular attention to primiparas, especially elderly primiparas. If with the growth of the fetus a disproportion threatens, labor should be induced at once, in the interests of both mother and child, even though the pregnancy is but little prolonged. Protracted gestation is in itself no indication for the induction of labor if the fetus is not oversize.

Residual Nitrogen in Labor and Puerperium.—Heesch made 350 examinations by the Bang micromethod in thirty cases, normal or with eclampsia or pregnancy kidney. He affirms that determination of the residual nitrogen and urea aids in the differential diagnosis between pregnancy eclampsia and true uremia. Determination of uric acid, amino-acids and creatinin is not useful for this purpose. Early in the puerperium after subsidence of the eclampsia, many women, especially in grave cases, show a pronounced increase of the residual nitrogen. The determination of the residual nitrogen and urea must thus be made at the height of the affection; the findings during the puerperium, following the eclampsia, may prove misleading.

Stereoscopy in Obstetric Measurement of the Pelvis and Estimation of Size of Fetus.—Archangelski describes the roentgenstereograph and the roentgenstereometer, by which sharply defined representations of the pelvis and of the fetal head may be obtained, thus allowing exact measurements. Internal examinations can thus be avoided.

Beiträge zur klinischen Chirurgie, Berlin

133: 367-532 (March) 1925

*Autotransfusion in Ruptured Tubal Pregnancy. E. Hempel.—p. 367.
*Freezing a Trunk Nerve. A. Läwen.—p. 405.
*Surgical Treatment of Aneurysm in the Brain. M. Borchardt.—p. 429.
Insufficiency of Metatarsal Bones. W. Müller.—p. 452.
Necrosis of Ends of Second and Third Metatarsal Bones. E. Roesner and S. Weil.—p. 470.
*Pulsating Exophthalmos. G. Büttner.—p. 512.
Torsion of the Gallbladder. A. Sutter.—p. 519.

Ruptured Tubal Pregnancy.—Hempel states that 3 liters of blood is the average amount poured out into the abdominal cavity. This is an enormous loss in oxygen carriers, but reinfusion of the extravasated blood proved fatal in 1.6 per cent. of the 415 published instances of it, and severe reactions were observed in 5.3 per cent. The injury from it was explained by air or clot embolism; cardiovascular complications; too old or infected blood; too much or too little sodium citrate; chilling of the blood; kidney disease; the hemolysins and agglutinins formed in the abdominal cavity; the whipping of the blood or the early toxin of defibrinated blood in Freund's sense. In Hempel's latest series of twenty-six cases the reinfusion failed to save one patient, bleeding for two days. Only eight came to operation within twelve hours; eight between the twenty-fifth and thirty-sixth hour and three later than this. Up to 2,700 c.c. was reinfused and all recovered with the one exception. One presented transient hemoglobinuria. He regards the reinfusion as the main indication at first even before clamping the tube. He urges publication of the details of all deleterious reactions.

Freezing the Nerve Trunk.—Läwen freezes the nerve with a carbon dioxid apparatus and reports excellent results in nearly all of fifty-two cases: pain after amputations, stump neuromas, angiospasms, senile gangrene, leg ulcers and erythromelalgia.

Surgical Treatment of Aneurysm of the Brain.—Borchardt reports two cases and has collected nine from the records. Only two were saved but perfected technic will improve this record.

Pulsating Exophthalmos.—In Büttner's case in a young man, compression of the carotid arrested the murmur, and ligation of the internal carotid restored clinically normal conditions. The arteriovenous aneurysm involved this artery and the cavernous sinus. He regards ligation of the common carotid as too dangerous for the brain.

Deutsches Archiv für klinische Medizin, Leipzig

147: 129-256 (May) 1925

*Adhesive Pericarditis and the Apex Beat. H. Regelsberger.—p. 129.
*Serum Ions in Nephritis and Pneumonia. G. Ehrismann.—p. 147.
Roentgen Picture of Pulmonary Stenosis. S. Usumoto.—p. 159.
*Iodin Metabolism. W. H. Veil and A. Sturm.—p. 166.
Experimental Research on Meteorism. R. Schoen.—p. 224.

Adhesive Pericarditis and the Apex Beat.—Regelsberger made the diagnosis of pericardial adhesions, even in clinically doubtful cases, by using the graphic method. The diastolic bulging and systolic retraction of the apex region are characteristic. The diastolic bulging is an exaggeration of a wave occurring in normal tracings.

Serum Ions in Nephritis and Pneumonia.—Ehrismann's analysis shows marked variations of the inorganic content of the blood ("poikilionia") in various diseases. The serum from nephritis and pneumonia patients contains hitherto unknown anions. In other patients a comparison of the inorganic salts with the depression of the freezing point leads to the conclusion that there are numerous unknown anelectrolytes present.

Iodin Metabolism.—A shorter paper by the same authors was summarized in these columns, June 13, 1925, p. 1883.

Deutsche medizinische Wochenschrift, Berlin

51: 889-930 (May 29) 1925

Internal Medicine and Endocrines. Rosenow.—p. 889. Cont'd.
*Life Expectancy of Former Athletes. M. Hahn et al.—p. 892.
*Dangers of Occultism. W. Jacobi.—p. 894.
Surgery of Pulmonary Cancer. H. A. Grueter.—p. 896.
Universal Angiokeratosis. J. Weicksel.—p. 898.
Acute Anterior Poliomyelitis. S. Saenger.—p. 900.
*Syphilis—Jaundice—Arsphenamin. E. Bernheim.—p. 904.
Standard Examination of Blood in Lead Workers. Teleky.—p. 906.
Pulse Volume in Pregnancy and Puerperium. W. Haupt.—p. 907.
*Blood Counts in Influenza. H. H. Hess.—p. 908.
*Death After Irrigation of Pleura. Rosenstein.—p. 908.
Survey on Otology. M. Meyer.—p. 911.
The Law on Epidemics.—p. 913.
Drug Supplies for Social Insurance. K. Finkenrath.—p. 914.
"Tuberculosis Immunization with Killed Germs." H. Langer.—p. 915.
"Amplifying the Heart Sounds." G. Schwarz.—p. 915.
"Trypaflavin and Acriflavin."—p. 915.
Old Age Insurances of German Physicians. S. Alexander.—p. 915.

Condition and Life Expectation of Former Athletes.—Hahn, Herxheimer and Brose examined fifty men who had been prominent in various fields of athletics. Twenty-eight of them had passed their forty-fifth year. No signs of injury especially no arteriosclerosis were found. Only the aorta was broader.

Dangers of Occultism.—Jacobi reports on three cases of psychographic psychosis in persons believing in spirits. The condition is so typical that it constitutes a pathologic entity. The strained listening to the voices of spirits may be the provoking mechanism. He points out that similar epidemics of occultism occur always in times of distress. One hundred years ago, when people generally believed in individual existence after death, a similar wave occurred.

Syphilis-Jaundice-Arsphenamin.—Bernheim reports on a case of jaundice in an early stage of syphilis. The jaundice responded well to mercury but reappeared after a small dose of neoarsphenamin.

Blood Counts in Influenza.—Contrary to the previous epidemics the grippe patients in the last year presented according to Hess a shifting to the left of the neutrophils.

Death after Irrigation of Pleura with Methylene Blue.—Rosenstein used Torres' method of intrapleural injection of 200 c.c. of a 5 per cent. solution of methylene blue in a young girl with empyema. The patient died within 1½ hours. Animal experiments showed that 0.5 mg. of methylene blue are toxic and 5 mg. lethal for mice.

Jahrbuch für Kinderheilkunde, Berlin

108: 267-388 (May) 1925

*Neurosis of Vegetative System in Children. Feer.—p. 267.
*Transparency of Skull with Hydrocephalus. J. v. Bókay.—p. 282.
Hernia of the Lung. M. de Bruin, Jr.—p. 295.
Goat's Milk Anemia Not a Distinct Entity. H. Opitz.—p. 311.
*Urobilin in Feces of New-Born and Infants. Marheineke.—p. 326.
*Blood Examination in Whooping Cough in Infants. Lasch et al.—p. 337.

Methylene Blue Treatment of Malaria in Children. P. I. Pitschugin.—p. 347.
*Specificity of Convalescents' Serum in Scarlet Fever. P. Bode.—p. 354.
Fetal Peritonitis. H. Flesch.—p. 366.

Acrodynia.—Feer reports a case of "pink disease" in a child old enough to describe its symptoms. Severe trophic disturbances complicated the clinical picture, necrosis of the fingers, popliteal spaces and buccal mucosa. The disease occurs mostly in winter and spring. Prostration and itching are pronounced from the first. It seems to be a neurosis of the vegetative nervous system affecting young children. He protests against the term "acrodynia" but approves of the "six P's" title (pain, pink, peeling, prostration, paresthesia, perspiration). Unless soon fatal, the child recovers after a few months' course, as a rule.

Transparent Skull with Hydrocephalus.—Von Bokay reports four cases in which although the head was approximately or quite normal size, the skull was transparent throughout or at the back and sides. The areas over the distended ventricles were the thinnest portions, the brain being scarcely more than 1 cm. thick at this point. The embryonal fontanels were all open. In his total nine cases, the lumbar puncture fluid was under high pressure even with very slight hydrocephalus.

Urobilin in Stool of Infants.—Marheineke found in seventy newly born and thirty-five older infants that the urobilin bodies do not appear in the stools until the end of the first month of life in normal conditions. Appearance before this, or disappearance after positive findings, points to disease of the liver. No connection between the character of the food and the urobilin could be discovered.

Blood in Whooping Cough.—Lasch and his co-workers regard the high leukocytosis and absolute lymphocytosis count as an index of the contagious phase. In six cases, when the blood count showed return to normal leukocytosis, they placed the children in contact with healthy infants, and although the six were still coughing severely, there was no contagion.

Convalescents' Serum in Scarlet Fever.—Bode declares that this serum is a powerful curative, capable of saving in the severest cases of toxic scarlet fever if given in the first three days of the disease in doses of 40-100 c.c. The intramuscular route is as effectual as the intravenous. The serum is effectual if drawn from the third to the end of the sixth week after the attack. The serum of persons whose scarlet fever dates from several months is less potent.

Klinische Wochenschrift, Berlin

4: 1049-1096 (May 28) 1925.

*The Tonsils. E. Nobel and A. F. Hecht.—p. 1049.
*The Thyroid and the Nervous System. A. Oswald.—p. 1053.
*Hypoglycemia. R. Priesel and R. Wagner.—p. 1055.
*Antigen from Acid-Fast Bacilli. Reiter and Ogawa.—p. 1057.
*The p_H of the Sputum. F. Hoff.—p. 1059.
Local Anesthetics on Mucous Membranes. Birkholz.—p. 1061.
*Grave Nose Bleed. C. Hirsch.—p. 1062.
Stimulation Treatment of Staphylococcus Infections and of Gonorrhea. M. Popper.—p. 1063.
*Therapeutic Value of Pneumencephalon. E. Trömner.—p. 1065.
The Blood During Drug Stimulation of Vagus. Dresel.—p. 1066.
*Increase in Liver Glycogen After Insulin. Frank et al.—p. 1067.
Digestion of Vegetable Cellulose. van der Reis and Gosmann.—p. 1068.
Local Anesthesia in Otorhinolaryngology. C. Hirsch.—p. 1068.
Inhalation Treatment. A. Muszkat.—p. 1072.
Excessive Mortality of Illegitimate Children. C. Wiese.—p. 1075.
Bill on Elementary Schools. R. Hirschfeld.—p. 1094.

The Tonsils.—Nobel and Hecht review the physiology and pathology of the tonsils. They are strictly opposed to extremely wide indications for tonsillectomy. Spontaneous regression in puberty is the rule. Tonsillectomy made after the fifth year diminishes the frequency of tonsillitis. In younger children the failures are frequent.

The Thyroid and the Nervous System.—Oswald attributes to the instability of the nervous system the degree of sensitiveness to administration of thyroid extracts. Tachycardia, nervousness, tremor or sweating has been produced by thyroid extracts experimentally only in fox terriers degenerated from inbreeding. He found that thyroid extract increases the action of pilocarpin, histamin and morphin. The bradycardia following an injection of pilocarpin is more pronounced and lasts longer under the influence of thyroid extracts. They sensitize the nervous system and the latter increases the action of the thyroid gland, which thus serves as an amplifier of the impulses. Thyroxin is not the full hormone because it does not act on the nerves regulating the blood circulation and on Auerbach's plexus. It is an artificial splitproduct. Only the thyroglobulin is, in his opinion, the true hormone of the thyroid.

Hypoglycemia.—Priesel and Wagner mention the case of a child with a tumor of the liver and other anomalies (including lipuria). The fasting sugar was 30 to 50 mg. per hundred c.c. of the child's blood, but no spasms occurred. The insulin hypoglycemia in a treated diabetic coma is characterized by irregularity of the pulse, normal breathing and rigidity of muscles. Grave hypoglycemic symptoms may start suddenly.

Antigen from Acid-Fast Bacilli and the Serum from Tuberculous Subjects.—Reiter and Ogawa compared antigens made from various acid-fast bacilli by extraction with tetralin, acetone and trichlorethylene with Wassermann's tuberculosis antigen. The results of the tests with the serums from normal, syphilitic and tuberculous subjects were similar, except for the lower specificity of these antigens. They were, however, able to absorb all the reacting tuberculous antibodies from the serum. The control absorption with colon bacilli failed. Alcoholic extracts (Nègre and Boquet) from acid-fast bacilli gave similar results but were still less specific.

The p_H of the Sputum.—Hoff determined the hydrogen ion concentration of the sputum. The reaction is always acid, especially in pulmonary tuberculosis, in which it seems to depend on the gravity of the process.

Grave Nosebleed.—Hirsch recommends electrocoagulation (with the diathermy apparatus) in treatment of grave epistaxis.

Therapeutic Value of Pneumencephalon.—Trömner recommends insufflation of air into the spinal canal in status epilepticus. He attributes the result to removal of the toxic cerebrospinal fluid. Although he had good results in one patient with general paralysis, he advises caution: other patients died.

Increase in Liver Glycogen After Insulin.—Frank, Hartmann and Nothmann injected small doses of insulin (1/10 unit) in rabbits fasting for four to six days. They found a distinct increase in glycogen in the liver. The contrary findings of other authors are due to spasms and the use of unphysiologic doses.

4: 1097-1144 (June 4) 1925

Syphilis, Paralysis, Tabes. K. Wilmanns.—p. 1097.
*Work and the Circulation. H. Eppinger et al.—p. 1101.
*Abortive Form of Bronzed Diabetes. D. van den Bergh.—p. 1106.
*Activation of Insulin. F. Bertram.—p. 1106.
*Itching and Skin Changes in Liver Disease. W. Brack.—p. 1109.
*Refractometry of Gastric Secretion. H. Fischer.—p. 1111.
Meinicke Turbidity Reaction. Evening and Rottmann.—p. 1114.
*Irradiated Milk in Treatment of Rickets. P. György.—p. 1118.
Pharmacology of Surviving Round Ligament. K. Junkmann and W. Stross.—p. 1119.
Treatment of Experimental Cancer. K. Vorlaender.—p. 1120.
Formaldehyd Gelatinization in Blood. G. Pfeffer.—p. 1121.
*Metabolism of Peptidases. H. Pfeiffer et al.—p. 1122.
Calcium Ions and Irritability of Nerves. H. Handovsky and C. C. Fong.—p. 1123.
Vaginal or Rectal Examination? W. Niderehe.—p. 1124.
Physiology of the Pituitary. K. Fromherz.—p. 1126.
Microsyringe. E. C. Smith.—p. 1143.
Test of Taste. W. Sternberg.—p. 1143.

Work and the Circulation.—Eppinger, Kisch and Schwarz made investigations on patients with heart affections. They assume an insufficiency of the peripheral circulation in those patients in whom exertion causes an abnormally high blood output from the heart, an impaired utilization of the oxyhemoglobin (measured by comparison of the oxygen in the arterial and venous blood) and a prolonged increase in oxygen consumption after the exertion.

Abortive Form of Bronzed Diabetes.—Bergh reports the history of five patients with pigmentation, moderate hyperglycemia, urobilinuria, leukopenia and relative lymphocytosis.

He regards them as instances of an attenuated and benign form of bronzed diabetes.

Activation of Insulin.—Bertram found an increased and protracted action of insulin when injecting it in a freshly prepared mixture with a casein solution. Separate injections or casein alone exerted no influence on the blood sugar curve.

Itching and Skin Changes in Liver Disease.—Brack believes that the alimentary hemoclastic crisis is the cause of itching in prurigo as well as in diseases of the liver. Peptone given one hour before the meals cures the itching. The beneficial action of liver extracts is simply due to their nonspecific content of peptones. Pilocarpin (5 drops of a 1 per cent. solution, three times a day) improved the itching in a patient with prurigo vulgaris.

Refractometry of Gastric Secretion.—Fischer concludes that the refractometric determination of the proteolytic power of the gastric contents is not a valuable addition to the clinical picture. The acidity is the most important factor.

Irradiated Milk Treatment of Rickets.—György irradiated olive oil, using a quartz lamp. After a short time the oil smelled like cod liver oil. The phenomenon did not appear if the oil had been previously boiled or if pure triolein was used. He also irradiated milk with artificial sunlight for thirty to sixty minutes before feeding it to children suffering from rickets. Out of eighteen patients, sixteen recovered within four to six weeks.

Peptidases in Blood and Urine.—Pfeiffer had found large amounts of a ferment splitting glycyl-tryptophan in anaphylactic shock, extensive burns and fever. He has continued, with Standenath and Weeber, this line of research. They found that infants and certain normal adults excrete the ferment by the urine. It seems that it originates in the colon. Epileptic patients usually excrete large amounts after their seizures. Before the attack the ferment is almost entirely absent from the urine, but is increased in the blood.

Monatsschrift für Kinderheilkunde, Leipzig

30: 193-377 (June and July) 1925

Problems of the Communal Pediatrist. T. Hoffa.—p. 218.
*Effect of Peppermint, Fennel and Chamomile Tea on Stomach and Intestinal Tract. W. Arnold.—p. 225.
Living Conditions of 321 Tuberculous in Remscheid. E. Aschenheim.—p. 233.
*Congenital Stridor. K. Benjamin.—p. 242.
*Pathogenesis of Carpopedal Spasm. O. Bossert.—p. 253.
*Significance of Heredity in Pediatric Clinic. K. Coerper.—p. 260.
*Children That Eat Poorly. S. Engel.—p. 270.
*Spastic Pylorus Stenosis in Infants. T. Hoffa.—p. 275.
Resorption and Elimination of Stain. S. Kaiser.—p. 288.
Meinicke Microreaction in Syphilis. E. Loewy.—p. 300.
Nevi in Children. E. Loewy.—p. 304.
*Charring of Fat and Digestion Lipemia. L. Mendel.—p. 308.
*Familial Scarlet Fever. S. Meyer and E. Burghard.—p. 313.
*Recurrent Umbilical Colic in Children. F. Pielsticker.—p. 367.

Tests of Effect of Peppermint, Fennel and Chamomile Tea on Stomach and Intestines.—Arnold confirms the effect generally attributed to these household remedies. Peppermint and fennel, especially the former, exert a paralyzing action on the stomach and are given for stomach colic and vomiting. All stimulate the intestine, particularly the large intestine, and may thus be useful in colics from spasms, in flatulence, and as a mild purgative in enteritis, peppermint being the most effective, chamomile the least (in the usual 5 per cent. infusion).

Origin and Treatment of Congenital Stridor.—Benjamin says that the usual infantile respiratory spasm may be temporarily arrested by pushing the lower jaw forward, by raising the floor of the mouth, and by pressing the tongue down, also by crying. These phenomena all lift the root of the tongue and the epiglottis. The sound of the stridor is due to the whirring of the free edges of the epiglottis, which in infants, because of the high larynx and the relative size of the tongue in a small space, is compressed and lies loosely over the glottis. Spontaneous recovery occurs as the lower jaw develops and the pharynx drops. The enlargement of the thymus common in congenital stridor is not a cause of the stenosis but may be considered a result, as venous hyperemia of the thoracic organs results from any obstacle in breathing.

Pathogenesis of Carpopedal Spasm.—Bossert's observations in children, mostly with latent hyperexcitability, showed that carpopedal spasms, with edema, may occur after sharp rises in weight. The manifestations may be produced in some children by sodium citrate.

Significance of Heredity in Pediatric Clinic.—During the last five years Coerper tested 16,000 school children and 8,000 infants and young children for morphologic peculiarities and variations in form. In infants and young children three fundamental psychophysical characteristics may be noted, namely, the instinct for food, the instinct for movement, and the instinct for care, and these are inherited. He believes that examination of a single characteristic has an interest only in the biology of heredity and no immediate clinical interest. The idea of degeneration, inferiority, and hereditary taint is inadmissible in the clinic because unscientific and should be supplanted by the idea of variability.

Children That Eat Poorly.—Of the 3, 4 and 5 year old children reported as refusing to take proper nourishment, a certain proportion may be disregarded, because they are expected to eat beyond their needs and naturally rebel. With the others the trouble often begins when soft foods are first given. Children of this type usually reject the sweet foods and prefer the highly seasoned. Engel calls it early maturing of taste. The neuropathic nature of the condition is undoubted. Other signs of psychopathy are frequently seen. Generally it is the only child who is affected. That these children often still have the bottle, probably morning and night, shows the faulty attitude of the parents. Training is foremost in treatment. A change is helpful. Children who at home refuse even fine food may eat readily elsewhere. The bottle should be forbidden at once. The food must be planned to appeal to the child's appetite without endangering his digestive organs. It is a mistake, he says, to force on these children, with nervous and mental instability, food which they dislike.

Operative Treatment of Spastic Pyloric Stenosis in Infants.—Hoffa advises internal treatment, according to Ibrahim, with careful avoidance of too many measures. If recovery does not follow in a comparatively short time, operation is indicated. He commends the Weber-Rammstedt operation particularly in the treatment of congenital pyloric spasm.

Roasting of Fat and Its Relation to Digestive Lipemia.—Mendel believes that this is of slight import for digestive lipemia.

Familial Scarlet Fever.—Meyer and Burghard report that study of tabulated cases of familial scarlet fever as well as of single cases has revealed a proportionately greater predisposition of boys to the grave forms of the disease.

The Liver in the Etiology of Recurrent Umbilical Colic in Children.—The hepatosis, Pielsticker says, to which this affection is due, is an extremely common concomitant manifestation of infectious processes of many kinds, and only in neuropathic children does it lead to umbilical colic.

Wiener klinische Wochenschrift, Vienna

38: 577-600 (May 28) 1925

*Sugar Value of Food. W. Falta.—p. 577.
*Vegetative System and Experimental Nephritis. L. Schönbauer and L. R. Whitaker.—p. 580.
Syphilis and Irritation. H. Krösl.—p. 582.
*Sulphur Baths. E. Maliwa.—p. 585.
'Exophthalmic Goiter." D. Adlersberg and O. Porges.—p. 587.
Sudden Death in Quarrel. Haberda.—p. 588.
Ulcer of Duodenum. Schütz.—p. 592.
Nutrition of the New-Born. A. Reuss. Supplement.—pp. 1-15.

Sugar Value of Food.—Falta figures 80 per cent. of the weight of proteins as a source of sugar, and does not take fat into account. He publishes experiments which show that in patients with a tendency to acidosis, proteins invite it. He believes that the theory of the antiketogenic ratio is due to the overlooking of cereal diets by the American authors.

Vegetative System and Experimental Nephritis.—Schönbauer and Whitaker extirpated in dogs one kidney and a third of the other. Only those animals in which they combined the operation with a decortication of the renal artery, survived for more than twelve days.

Sulphur Baths.—Maliwa attributes the action of sulphur hot springs to their hydrogen sulphid content. A bath of 250 liters from one Baden well contains 0.86 gm. of this gas. With addition of the bromid sulphid, the content is 1.6 gm.

Zeitschrift für Urologie, Leipzig

19: 401-480, 1925

Surgery of Seminal Vesicles and Ducts. R. Picker.—p. 401.
Syphilis of Seminal Vesicles. Frank.—p. 415.
Treatment of Gonorrheal Strictures of Urethra. V. J. Marselos.—p. 417.
Colorimetric Tests of Kidney Function. A. Cassuto.—p. 420.
Double Ureter and Double Kidney Pelvis. Haslinger.—p. 422.
Mechanism of Urine Elimination. K. Lion.—p. 428.
Origin of Pregnancy Nephritis. G. Armbruster.—p. 430.
Uremia in Idem. Idem.—p. 431.
Kidney Infarcts in the New-Born. Idem.—p. 433.
Treatment of Urethrorectal Fistula. J. J. Stutzin.—p. 435.
Operations on Single Kidneys. Siedner.—p. 442.
Single Kidney Located in Pelvis. J. Bitschai.—p. 446.
Nerves of Kidney Pelvis. Haebler.—p. 450.
Cysts of the Bladder. R. Schröder.—p. 450.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2489-2604 (June 6) 1925

*Test for Urobilin. A. J. L. Terwen.—p. 2492.
*Urobilin as Index of Hemolysis. A. Lichtenstein.—p. 2508.
*Capillary Analysis of the Blood. E. Sluiter.—p. 2515.
*The Nervous System and Carbohydrate Metabolism. G. C. Bolten.—p. 2521.
*Pulmonary Edema. W. L. Pel.—p. 2532.
Keratomalacia from One-Sided Diet. L. K. Wolff.—p. 2534.
Chronic Pigmented Urticaria in Boy. J. H. Broers.—p. 2535.
*History of Malaria in the Netherlands. N. H. Swellengrebel and P. J. J. Honig.—p. 2538.

Quantitative Colorimeter Test for Urobilin.—Terwen's technic shows in milligrams the urobilin in urine and feces. It is computed from the urobilinogen reduced in an alkaline medium. One unit of urobilinogen corresponds to 0.4 mg. of urobilin in 100 c.c. of fluid. The purity of urobilin can be determined by its reduction to urobilinogen under the iron salt he uses ($FeSO_4(NH_4)_2SO_46H_2O$). Ether dissolves the urobilinogen while the urobilin precipitates out. This ether extract of urobilinogen can be used also with the Ehrlich-Neubauer aldehyd urine test and the Ehrlich-Thomas test.

Connection Between Production of Urobilin and Destruction of Blood.—Lichtenstein found with Terwen's method (which he styles "the simplest and the most accurate of all") that the normal daily output of urobilin never exceeds 1 mg. in the urine and 135 to 150 mg. in the stools. An index of the hemoglobin metabolism can be obtained by comparing the number of erythrocytes, the hemoglobin percentage, the color index, the number of erythrocytes that take the vital stain, the findings with the van den Bergh test, and the amount of urobilin excreted daily. The last three factors throw light on the intensity of the process of blood destruction; the first three on both blood destruction and blood regeneration processes.

Capillary Analysis of Blood.—Sluiter's illustrations confirm his statements on the difference in different species between the height to which the fluid climbs when a strip of filter paper is suspended in blood. He thinks this method might be utilized in clinical differentiation.

The Vegetative Nervous System and Carbohydrate Metabolism.—Bolten injected himself with various drugs after ingestion of 50 gm. of glucose, and recorded the effect on the sugar content of the blood (normal). The action of epinephrin was almost exactly the same by the mouth as by subcutaneous injection if the stomach was empty. Thyroid extract did not seem to influence the blood sugar content, while there was very little difference between the action of atropin, pilocarpin and cholin in this respect.

Pulmonary Edema.—Pel's patient was a supposedly healthy bride of 69. The ninety minute attack of pulmonary edema occurred during the first night of the honeymoon, and subsided without a trace.

History of Malaria in the Netherlands.—This article was written by request of the health board of the League of Nations. The Netherlands are said to have been the seat of the most malignant endemic malaria in Europe, outside of Italy, but evidence is here presented that this grave character was due to intercurrent diseases which are now less common.

Acta Dermato-Venereologica, Stockholm

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Mucosa Changes in Darier's Disease. Brünauer.—p. 131.
*Experimental Production of Cancer with Indol. F. Fischl.—p. 180.
Syphilitic Melanoderma and Leukoderma. Almkvist.—p. 189.
Mycosis Fungoides of Skin and Internal Organs. S. R. Brünauer.—p. 198.
True Locomotor Ataxia Associated with Active Tertiary Skin Syphilis. B. B. Beeson.—p. 241.
Purulent Orchitis and Epididymitis from Colon Bacillus Infection. F. Grøn and T. Thjøtta.—p. 247.
Erythrodermia and Keratodermia Variabilis. S. Mendes da Costa.—p. 255.
Gonococcus Meningitis and Purpura. E. Bruusgaard and T. Thjøtta.—p. 262.

Experiments on Production of Cancer with Indol.—Stöber and Wacker reported that the subcutaneous injection of a 5 per cent. emulsion of indol in rabbit fat into the rabbit ear under pressure, repeated after two or three days, resulted after fourteen days in pea-sized tumors which microscopic examination showed to be neoformations resembling squamous-celled epithelioma. Fischl's experiments by the same technic, supplemented by injection of rabbit fat alone into the other ear, produced lumps in both ears after fourteen days, with no signs of cancer on histologic examination. Further experiments on mice by rubbing 5 per cent. indol ointment into the back for two or three minutes at the time, continued for half a year, under observation for a year, caused no pathologic changes. Three to eight minutes after the intracutaneous injection of 0.05 gm. of indol in oil emulsion in the back in four mice, grave clonic spasms occurred, with death in about three hours. He concludes that indol is not a cancer-producing substance. The resulting epithelial cysts in the subcutis, with occasional acanthosis and pronounced hyperkeratosis, he attributes to mechanical causes. Indol, he says, is a poison causing convulsions.

Acta Medica Scandinavica, Copenhagen

Supplement X, pp. 1-207. English Edition

*Sciatica or Myopathia e Labore of the Posterior Region of the Leg. J. Helweg.—p. 1.

Sciatica.—Helweg believes that the pain along the back of the leg is in the vast majority of cases due to muscular disease, not to a lesion of the sciatic nerve. This muscular affection he considers the result of excessive use of the muscles in question. He therefore calls it "myopathia e labore."

Supplement XI, pp. 1-704. German Edition

*Research on Paroxysmal Hemoglobinuria. E. B. Salén.—p. 1.

Research on Paroxysmal Hemoglobinuria.—Salén's investigation supports the view that this affection is a disturbance of the normal blood metabolism. It seems to him probable that it depends chiefly or exclusively on the mechanism which normally causes the removal of the cells from the blood vessels or gives the first impulse to their removal. He discusses in particular hemoglobinuria from chilling.

Hospitalstidende, Copenhagen

68: 385-408 (April 30) 1925

*Perforated Gastric and Duodenal Ulcer. H. Abrahamsen.—p. 385. Conc'n.
Epidemic Encephalitis and Epidemic Hiccup, also Influenza and Acute Anterior Poliomyelitis in Denmark. A. V. Neel.—p. 392. Conc'n.—p. 409.

Perforated Gastric and Duodenal Ulcer.—Abrahamsen's reexamination of 57 patients, 28 operated on for perforated gastric ulcer, 28 for perforated duodenal ulcer, revealed good results in 29; fair in 15; poor in 12. A second intervention, indicated by hemorrhages, pain, and stenosis, had been necessary in 11 cases, 4 with gastric, 7 with duodenal ulcer. Complete recovery followed in 5 of the 9 cases of indolent gastric ulcer. To determine in advance on gastro-enterostomy or resection is impossible he says. He confines himself to simple suture, supplemented by gastroenterostomy if it is evident that stenosis will occur (Moynihan). He emphasizes that the improved results in perforated gastric and duodenal ulcer are due primarily to two factors, immediate transference of the patient to the hospital and surgical intervention without delay by definite method.